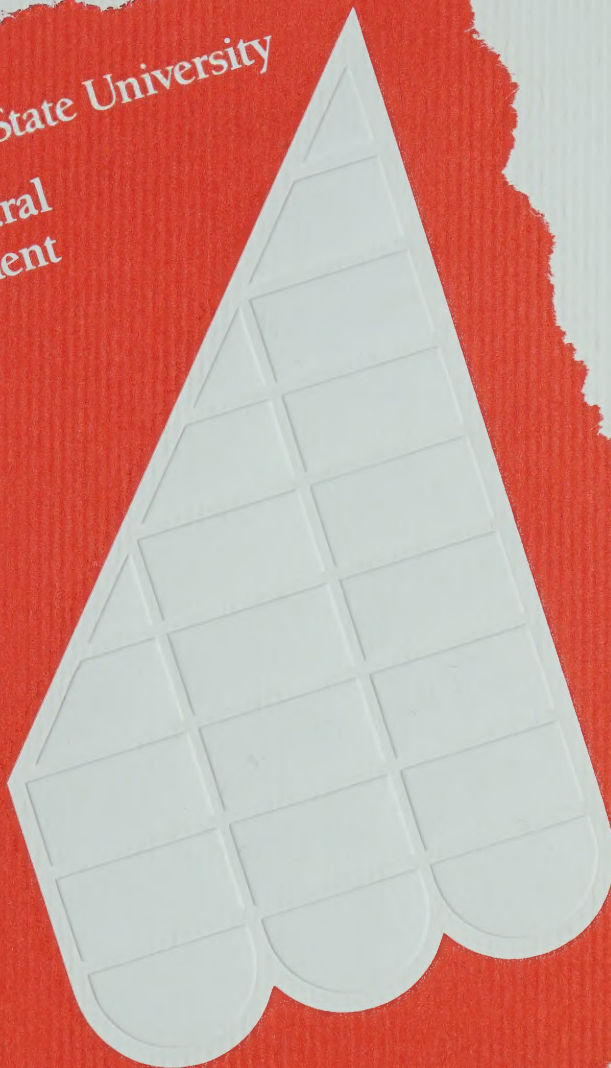


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The 1990 Annual Report

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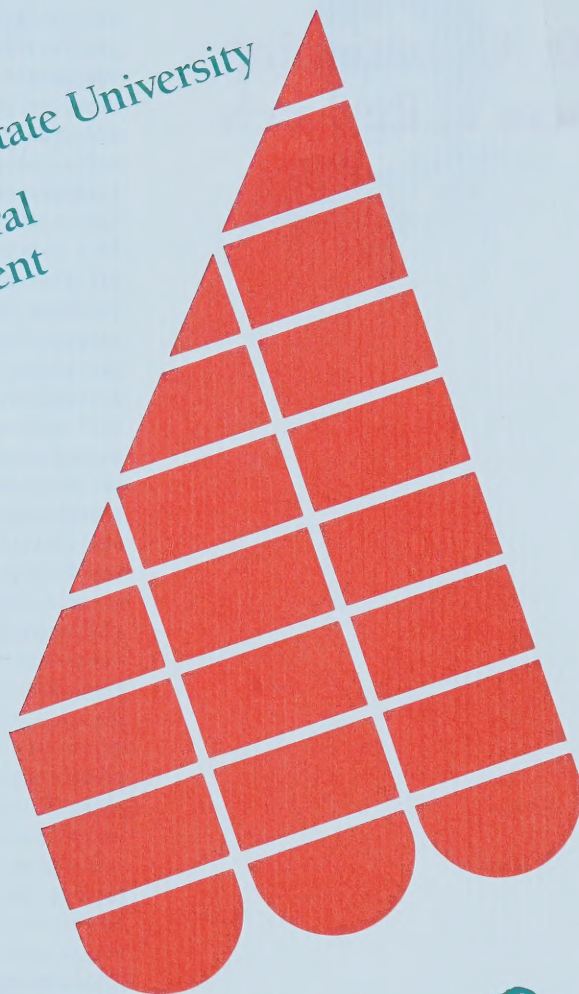
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Michigan State University

Agricultural
Experiment
Station



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The 1990 Annual Report

Report prepared under the direction of Robert G. Gast, director of the Michigan Agricultural Experiment Station, and finance and operations manager Doreen Woodward. Design by Christine Altess; editing and production by Jamie DePolo, information officer, Outreach Communications.

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1990: A Continuing Commitment to Research

In 1990, the Michigan Agricultural Experiment Station continued its commitment to the research needs of Michigan's citizens. As an outgrowth of the on-going prioritization process that was started in 1988, task forces specializing in integrated pest management (IPM), forage utilization and manure management were assembled, as well as a social science advisory committee. Robert Hollingworth, director of the Pesticide Research Center and professor of entomology, and George Bird, professor of entomology, are chairpersons of the IPM task force; Charles Sniffen, Clinton E. Meadows endowed chair for dairy cattle management, is chairperson of the forage task force; and Lee Jacobs, professor of crop and soil sciences, and Howard Person, associate professor of agricultural engineering, are chairpersons of the manure management task force. Frank Fear, chairperson of the Department of Resource Development, is chairperson of the advisory committee. The task forces have been charged with determining priorities for these issues in the state and developing research and education programs to address the challenges faced by their respective commodity groups and industries. The social science advisory committee has been asked to identify ways that the social sciences can be more effectively integrated into Agricultural Experiment Station programs and develop mutually beneficial relationships between MAES researchers and social scientists in other colleges.

Budgetary matters are an on-going challenge for the Experiment Station, but we have been encouraged by the legislature's response to our prioritization process. We maintain a dialogue with state legislators regarding our priorities and continue to seek funding from a variety of sources.

1990 also brought four new department chairpersons to the Agricultural Experiment Station.

Timothy Springer, a former associate professor in the Department of Human Environment and Design at MSU, was appointed chairperson of that department in June. He specializes in ergonomics, including workplace requirements analyses, technical impact studies, and critiques of products.

Betty van der Smitten, whose research has focused on law, specifically negligence in relation to the areas of parks and recreation and the leisure industry, was named chairperson of the Department of Park and Recreation Resources in August. Before her appointment, she was professor and director of the School of Health, Physical Education and Recreation at Bowling Green State University.

Wayne Loescher, a plant physiology and tissue culture researcher, was appointed chairperson of the Department of Horticulture in September. He came to MSU from Washington State University, where he was interim chairperson of the Department of Horticulture and Landscape Architecture.

Robert von Bernuth, who was formerly a professor at the University of Tennessee, was selected as chairperson of the Department of Agricultural Engineering in October. His research emphasis is irrigation and water management.

Sustainable agriculture methods are quickly losing their "alternative" implications and becoming increasingly prominent in the every-day practices of Michigan producers. Thanks to the generous support of the Charles S. Mott Foundation of Flint, Richard Harwood was appointed as C. S. Mott distinguished professor of sustainable agriculture in August. Harwood is the former director of the Asian Program for Winrock International, and was also director of the Rodale Research Center, where he studied the improvement of low-input farming systems. Harwood's work at Rodale became much of the foundation for current sustainable agriculture research.

This year, we also began to update some of our facilities to meet researchers' unique requirements.

Planning money was appropriated for a crop and soil sciences field laboratory that will be located at the corner of Mt. Hope and Beaumont roads. The lab will replace the existing field lab that is on the site now and will provide new acreage to meet the specialized needs of small grain and soybean breeding scientists.

Funding for the planning phase and a portion of the \$64 million for facilities outlined in the animal agriculture initiative were generated this year. The funds for the animal agriculture initiative are possible through the support and cooperation of all segments of the agricultural community.

As we move into 1991, we will continue to meet the special research needs of the people of Michigan. Whether in integrated pest management, forage utilization, manure management, the social sciences or the many other areas we are involved in, the Michigan Agricultural Experiment Station carries on with its mission to discover information that will benefit the state and its citizens.



"As we move into 1991, we will continue to meet the special research needs of the people of Michigan. Whether in integrated pest management, forage utilization, manure management, the social sciences or the many other areas we are involved in, the Michigan Agricultural Experiment Station carries on with its mission to discover information that will benefit the state and its citizens."

Robert G. Gast

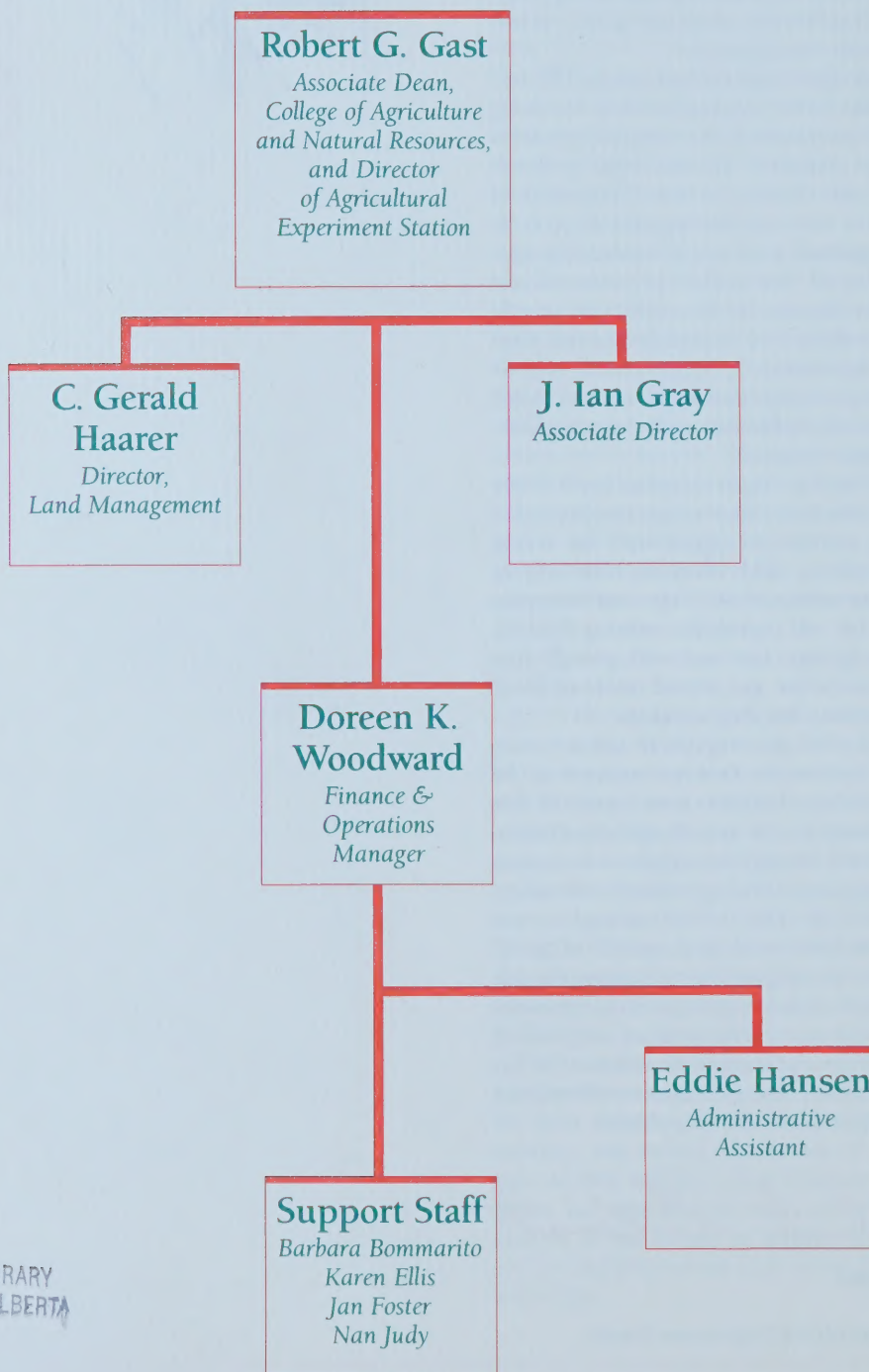
Director

Michigan Agricultural Experiment Station

Agricultural Experiment Station

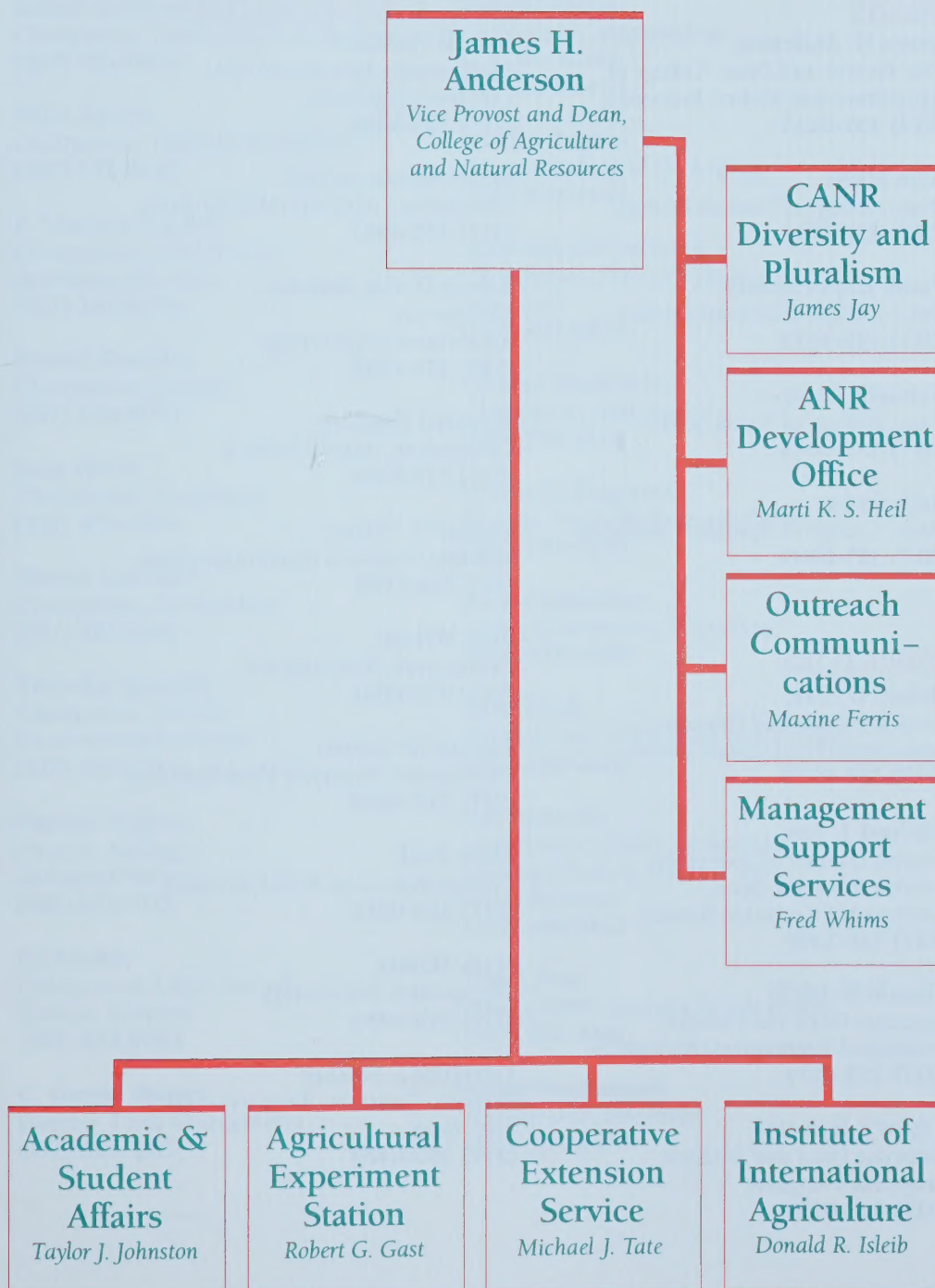
Organizational Flow Chart

As of 10-1-90



College of
Agriculture
And Natural
Resources
Dean's Office

As of 10-1-90



AES Affiliated Deans, Directors, and Unit Administrators

As of 10-1-90

DEANS

James H. Anderson
Vice Provost and Dean, College of
Agriculture and Natural Resources
(517) 355-0233

Julia Miller
Dean, College of Human Ecology
(517) 355-7714

Frank Hoppensteadt
Dean, College of Natural Science
(517) 355-4473

Kenneth Corey
Dean, College of Social Science
(517) 355-6675

John Tasker
Dean, College of Veterinary Medicine
(517) 355-6509

DIRECTORS

Robert G. Gast
Associate Dean and Director,
Agricultural Experiment Station
(517) 355-0123

Michael J. Tate
Interim Director of Extension,
Interim Associate Dean,
Cooperative Extension Service
(517) 355-2308

Donald R. Isleib
Associate Dean and Director,
Institute of International Agriculture
(517) 355-0174

Taylor J. Johnston
Associate Dean and Director,
Academic Programs
(517) 355-0234

UNIT ADMINISTRATORS

Carroll Wamhoff
Chairperson, Agricultural and
Extension Education
(517) 355-6580

Lester Manderscheid
Chairperson, Agricultural Economics
(517) 355-4567

Robert D. von Bernuth
Chairperson,
Agricultural Engineering
(517) 353-7268

Maynard Hogberg
Chairperson, Animal Science
(517) 355-8384

Maxine S. Ferris
Manager, Outreach Communications
(517) 336-1555

John Wilson
Chairperson, Biochemistry
(517) 353-0804

Gustaaf de Zoeten
Chairperson, Botany & Plant Pathology
(517) 355-4688

Eldor Paul
Chairperson, Crop & Soil Sciences
(517) 355-0262

Mark Scriber
Chairperson, Entomology
(517) 355-4665

Lawrence J. Fischer
Director, Center for Environmental
Toxicology
(517) 353-6469

Robert Griffore
Chairperson, Family & Child Ecology
(517) 355-7680

Niles Kevern
Chairperson, Fisheries & Wildlife
(517) 353-0647

P. Vincent Hegarty
Chairperson, Food Science
& Human Nutrition
(517) 355-8476

Daniel Keathley
Chairperson, Forestry
(517) 355-0093

Judy Olson
Chairperson, Geography
(517) 355-4649

Wayne Loescher
Chairperson, Horticulture
(517) 355-5191

Timothy Springer
Chairperson, Human
Environment & Design
(517) 355-7712

Patrick Webber
Director, Kellogg
Biological Station
(616) 671-5117

Ed Mather
Chairperson, Large Animal
Clinical Sciences
(517) 355-0593

C. Gerald Haarer
Director, Land Management
(517) 355-3272

Jerry Dodgson
Chairperson, Microbiology
& Public Health
(517) 355-6465

Harold Hughes
Director, School of Packaging
(517) 353-6462

Betty van der Smissen
Chairperson, Park and Recreation
Resources
(517) 353-0822

Charles MacKenzie
Chairperson, Pathology
(517) 353-9160

Robert Hollingworth
Director, Pesticide Research Center
(517) 353-9430

John Chimoskey
Acting Chairperson, Physiology
(517) 355-4488

Peter Wolk
Director, MSU-DOE Plant Research Lab
(517) 353-2270

Jon Bartholic
Coordinator, Center for Remote
Sensing; Director, Institute for
Water Research
(517) 355-3421

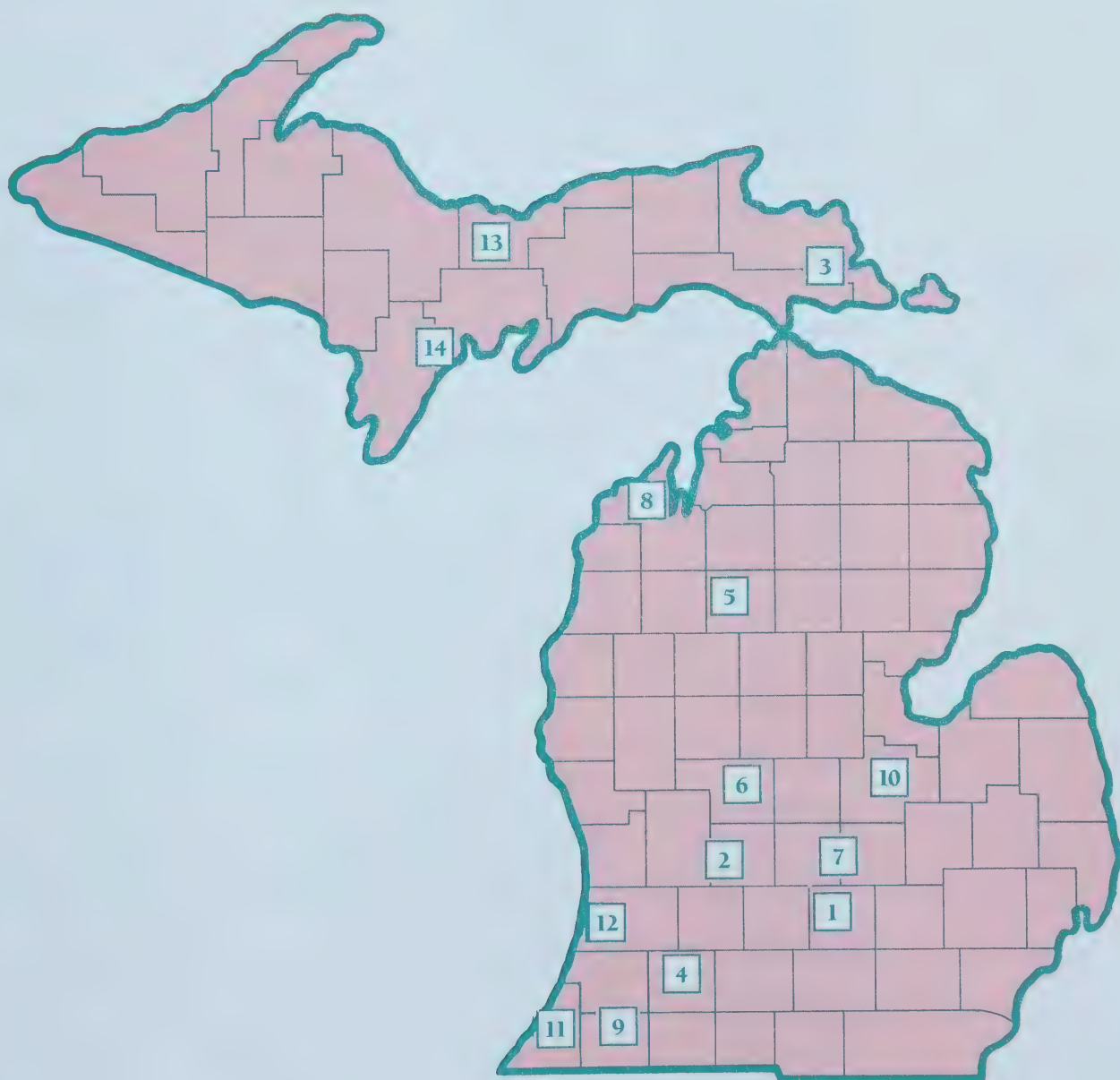
Frank Fear
Chairperson, Resource Development
(517) 355-3421

Chris Vanderpool
Chairperson, Sociology
(517) 355-6632

Agricultural Experiment Station Outlying Stations

10-1-90

1. **East Lansing Field Research Facilities**
Established 1888
109 Agriculture Hall
East Lansing, MI 48824-1039
Phone: (517) 355-3272
C. Gerald Haarer
Director, Land Management
2. **Clarksville Horticultural Experiment Station**
Established 1974
Box 77A
9302 Portland Road
Clarksville, MI 48815
Phone: (616) 693-2193
Gerald Skeltis
Farm Manager
3. **Dunbar Forest Experiment Station**
Established 1925
Rt. 1, Box 179
Sault Ste. Marie, MI 49783
Phone: (906) 786-1575
Ray Miller
Forester
4. **W.K. Kellogg Biological Station and W.K. Kellogg Forest**
Established 1928
3700 E. Gull Lake Drive
Hickory Corners, MI 49060
Phone: (616) 671-5117
Bernie Knezek (616) 671-2324
Director, Agricultural Programs
Patrick Webber (616) 671-2323
Director, Programs and Development
Greg Kowalewski
(616) 731-4597
Resident Forester
5. **Lake City Experiment Station**
Established 1928
Lake City, MI 49651
Phone: (616) 839-4608
Doug Nielsen
Farm Manager
6. **Montcalm Experimental Farm**
Established 1966
Rt. 1
Lakeview, MI 48850
Phone: (517) 365-3473
Richard Kitchen
Technician
7. **Muck Soils Research Farm**
Established 1941
Rt. 3
9422 E. Herbison Road
Laingsburg, MI 48848
Phone: (517) 641-4062
Ronald Gnagey
Field Research Technician
8. **Northwest Michigan Horticultural Research Station**
Established 1979
6686 Center Highway
Traverse City, MI 49684
Phone: (616) 946-1510
Charles Kesner
Supervisor
Bill Klein
Farm Manager
9. **Fred Russ Forest Experiment Station**
Established 1942
20673 Marcellus Highway
Decatur, MI 49045
Phone: (616) 782-5652
Greg Kowalewski
Forester
Scott Newland
Research Assistant
10. **Saginaw Valley Beet and Bean Research Farm**
Established 1971
3066 S. Thomas Road
Saginaw, MI 48603
Phone: (517) 781-1160
Paul Horny
Farm Manager
11. **SW Michigan Research & Extension Center**
Established 1987
1791 Hillandale Rd.
Benton Harbor, MI 49022
Phone: (616) 944-1477
James Ertman
Farm Manager
Tom Zabadal
Station Coordinator
12. **Trevor Nichols Research Complex**
Established 1967
Rt. 4, 6227 M-89
Fennville, MI 49408
Phone: (517) 355-9615
or (616) 561-5040
Matthew Daly
Farm Manager
13. **Upper Peninsula Experiment Station**
Established 1899
Chatham, MI 49816
Phone: (906) 439-5114
Paul Naasz
Farm Manager
14. **Upper Peninsula Tree Improvement Center**
Established 1986
6005 J Road
Escanaba, MI 49829
Phone: (906) 786-1575
Ray Miller
Resident Forester



List of AES Scientists by Department

As of 10-1-90



The names listed here represent the faculty members who have an AES appointment and are in the tenure stream as of 10-1-90. The numbers shown under the category of "Other Faculty" indicate the number of other tenure stream faculty who are in that department but do not have an AES appointment.

KEY:

T = Teaching R = Research

E = Extension G = Grant

J = Joint Appointment in another college or department

12 = Professor

13 = Associate Professor

14 = Assistant Professor

Agricultural Economics

Ph: (517) 355-4563

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Black, J. Roy	12	0.20	0.80	0.00	0.00	0.00	Farm Management
Bonnen, James T.	12	0.15	0.85	0.00	0.00	0.00	Public Policy
Connor, Larry J.	12	0.50	0.50	0.00	0.00	0.00	Farm Management
Eicher, Carl K.	12	0.35	0.65	0.00	0.00	0.00	Int'l. Development
Ferris, John N.	12	0.15	0.20	0.65	0.00	0.00	Outlook & Prices
Hamm, Larry G.	13	0.10	0.25	0.65	0.00	0.00	Dairy Mktg. & Policy
Hanson, Steven	14	0.20	0.80	0.00	0.00	0.00	Agr. Finance
Harsh, Stephen B.	12	0.15	0.20	0.65	0.00	0.00	Farm Management
Hoehn, John	13	0.30	0.70	0.00	0.00	0.00	Resource Development
Lloyd, James	14	0.00	0.20	0.00	0.00	0.80	Livestock Prod./Hlth. Mgt./Food Safety
Lohr, Luanne	14	0.20	0.25	0.55	0.00	0.00	Resource Economics
Myers, Robert S.	14	0.20	0.80	0.00	0.00	0.00	Int'l. Trade & Price Analysis
Oehmke, James	14	0.25	0.75	0.00	0.00	0.00	Price Analysis & Research Policy
Ricks, Donald J.	12	0.10	0.20	0.70	0.00	0.00	Marketing
Robison, Lindon J.	12	0.10	0.90	0.00	0.00	0.00	Production Econ.
Schmid, A. Allan	12	0.40	0.60	0.00	0.00	0.00	Land Econ./Pub. Pol.
Schwab, Gerald D.	12	0.15	0.20	0.65	0.00	0.00	Farm Management
Shaffer, James D.	12	0.30	0.70	0.00	0.00	0.00	Mktg./Ag. Policy
van Ravenswaay, Eileen	12	0.30	0.70	0.00	0.00	0.00	Pub. Pol./Food Safety
Weber, Michael T.	12	0.20	0.80	0.00	0.00	0.00	Int'l. Development
SUBTOTALS:		4.30	11.05	3.85	0.00	0.80	
Other Faculty:		2.17	0.00	6.73	2.10	0.00	
TOTALS:		6.47	11.05	10.58	2.10	0.80	

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Bakker-Arkema, Fred	12	0.35	0.65	0.00	0.00	0.00	Grain Dry/Storage
Berglund, Kris A.	12	0.30	0.30	0.00	0.00	0.40	Biotech./Food Engr.
Bickert, William G.	12	0.00	0.20	0.80	0.00	0.00	Livestock Fac./Env.
Bralts, Vincent F.	13	0.30	0.50	0.00	0.00	0.20	Soil & Wtr./Int'l. Pgm.
Brook, Roger C.	12	0.00	0.25	0.75	0.00	0.00	Post-Harv. Handling
Burkhardt, Thomas H.	12	0.60	0.25	0.00	0.00	0.15	Power & Mach. Systems & Storage
Gerrish, John B.	12	0.50	0.40	0.00	0.00	0.10	Elec. Robotics
Grulke, Eric A.	12	0.00	0.25	0.00	0.00	0.75	Mass Transfer/ Separation/ Food Engineering
Guyer, Daniel E.	14	0.00	0.25	0.75	0.00	0.00	Fruit/Vegetable Stor.
Loudon, Theodore L.	12	0.00	0.30	0.70	0.00	0.00	Pollut. Mgmt./Irr.
Merva, George E.	12	0.50	0.50	0.00	0.00	0.00	Irrigation/Drng.
Mrozowski, Timothy	13	0.80	0.20	0.00	0.00	0.00	Bldg. Construction
Ofoli, Robert Y.	13	0.50	0.25	0.00	0.00	0.25	Heat & Mass Trsf. of Bio. Sys./Food Engr.
Person, Howard L.	13	0.00	0.30	0.70	0.00	0.00	Ag. Structures
Segerlind, Larry J.	12	0.60	0.40	0.00	0.00	0.00	Finite Element Analysis
Srivastava, Ajit K.	13	0.40	0.50	0.00	0.00	0.10	Power & Mach. Systems Hydraulics
Steffe, James F.	12	0.40	0.35	0.00	0.00	0.25	Food Engr./Rheology
Surbrook, Truman C.	12	0.15	0.25	0.00	0.00	0.60	Elec. Tech.
Van Ee, Gary R.	13	0.25	0.65	0.00	0.00	0.10	Chemical Applies./ Power & Mach.
Wilkinson, Robert H.	13	0.15	0.15	0.60	0.00	0.10	Human Factors Engr./ Chem. Applies.
SUBTOTALS:		5.80	6.90	4.30	0.00	3.00	
Other Faculty:		3.35	2.90	3.40	3.00	14.10	
TOTALS:		9.15	9.80	7.70	3.00	17.10	

Agricultural Engineering

Ph: (517) 355-4720

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Heinze, Kirk L.	14	0.80	0.20	0.00	0.00	0.00	Communication
Levine, S. Joseph	13	0.30	0.20	0.50	0.00	0.00	Faculty Development
SUBTOTALS:		1.10	0.40	0.50	0.00	0.00	
Other Faculty:		5.20	0.00	0.00	0.00	3.80	
TOTALS:		6.30	0.40	0.50	0.00	3.80	

Ag & Extension Education

Ph: (517) 355-6580

Animal Science

Ph: (517) 355-8383

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Allen, Michael	14	0.00	0.50	0.50	0.00	0.00	Forage Nutrition
Aulerich, Richard J.	12	0.00	0.75	0.25	0.00	0.00	Fur-bearing Animals
Balander, Richard J.	13	0.60	0.40	0.00	0.00	0.00	Avian Phys./Repro.
Bergen, Werner G.	12	0.20	0.80	0.00	0.00	0.00	Rum. Nutr./Grth. Biol.
Bucholtz, Herbert F.	12	0.00	0.20	0.80	0.00	0.00	Dairy Nutr./Mgmt.
Bursian, Steven	13	0.15	0.85	0.00	0.00	0.00	Avian Phys./Toxic.
Chang, Timothy S.	12	0.15	0.85	0.00	0.00	0.00	M&PH/Poultry Path.
Chou, Karen	14	0.50	0.13	0.00	0.37	0.00	Toxicology
Coe, Paul H.	13	0.00	0.20	0.00	0.00	0.80	Animal Health
Cook, Robert M.	12	0.20	0.80	0.00	0.00	0.00	Rum. Nutrition
Coussens, Paul M.	14	0.20	0.80	0.00	0.00	0.00	Molecular Biology
Emery, Roy S.	12	0.20	0.60	0.00	0.00	0.20	Rum. Nutrition
Ferris, Theodore A.	13	0.00	0.20	0.80	0.00	0.00	Breeding
Flegal, Cal J.	12	0.00	0.35	0.65	0.00	0.00	Avian Nutr./Mgmt.
Fogwell, Ralph L.	12	0.40	0.60	0.00	0.00	0.00	Physiology
Gill, John L.	12	0.50	0.50	0.00	0.00	0.00	Statistics Genet.
Hawkins, David R.	12	0.60	0.20	0.00	0.00	0.20	Beef Cattle Nutr.
Ireland, James J.	12	0.20	0.80	0.00	0.00	0.00	Physiology
Mao, Ivan Ling	12	0.30	0.70	0.00	0.00	0.00	Breeding
McGilliard, Lon D.	12	0.50	0.50	0.00	0.00	0.00	Breeding
Merkel, Robert A.	12	0.50	0.25	0.00	0.00	0.25	Growth Biology
Miller, Elwyn R.	12	0.00	0.85	0.00	0.00	0.15	Swine Nutrition
Polin, Donald	12	0.25	0.75	0.00	0.00	0.00	Avian Nutrition
Rahn, Allan P.	12	0.00	0.20	0.65	0.00	0.15	Mgmt. Agr. Econ.
Ritchie, Harlan D.	12	0.00	0.10	0.90	0.00	0.00	Beef Ctl. Nutr. Mgmt.
Rust, Steven	14	0.00	0.50	0.50	0.00	0.00	Beef Feedlot Nutr.
Skidmore, Andrew	13	0.00	0.50	0.50	0.00	0.00	Dairy Management
Sniffen, Charles*	12	0.50	0.25	0.25	0.00	0.00	Dairy Nutr./Mgt.
Thulin, Andrew	14	0.15	0.15	0.70	0.00	0.00	Swine Nutr./Mgmt.
Tucker, H. Allen	12	0.20	0.80	0.00	0.00	0.00	Phys./Lactation
Ullrey, Duane E.	12	0.40	0.60	0.00	0.00	0.00	Animal Nutrition
VandeHaar, Michael	13	0.20	0.80	0.00	0.00	0.00	Dairy Nutrition
Yokoyama, Melvin T.	12	0.15	0.85	0.00	0.00	0.00	Animal Nutr./Micro.
SUBTOTALS		7.05	17.33	6.50	0.37	1.75	
Other Faculty:		3.40	0.15	3.72	0.00	3.03	
TOTALS:		10.45	17.48	10.22	0.37	4.78	

*Clinton E. Meadows Endowed Chair for Dairy Cattle Management

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Anderson, Richard L.	12	0.45	0.25	0.00	0.00	0.30	Carbohy. Metab.
Burton, Zachary	14	0.00	0.20	0.00	0.00	0.80	Molecular Biology
Deal, William C., Jr.	12	0.00	0.40	0.00	0.00	0.60	Phys. Biochem.
Denison, Michael	14	0.15	0.65	0.00	0.00	0.20	Toxicology/Mol. Bio.
Fraker, Pamela J.	12	0.00	0.44	0.00	0.00	0.56	Immunology
Holland, John F.	12	0.00	0.80	0.00	0.00	0.20	Analytical Biochem.
Kaguni, Jon M.	13	0.00	0.80	0.00	0.00	0.20	Molecular Biology
Kindel, Paul K.	12	0.20	0.60	0.00	0.00	0.20	Plant Biochem.
Kroos, Lee	14	0.20	0.60	0.00	0.00	0.20	Molecular Biology
Schindler, Melvin	12	0.00	0.35	0.00	0.00	0.65	Cell Biology
Triezenberg, Steven	14	0.00	0.20	0.00	0.00	0.80	Molecular Biology
Wang, John L.	12	0.00	0.20	0.00	0.00	0.80	Cell Biology
Watson, J. Throck	12	0.00	0.50	0.00	0.00	0.50	Analytical Biochem.
SUBTOTALS:		1.00	5.99	0.00	0.00	6.01	
Other Faculty:		1.10	0.00	0.00	0.00	27.91	
TOTALS:		2.10	5.99	0.00	0.00	33.92	

Biochemistry

Ph: (517) 355-1600

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Adams, Gerard C.	14	0.00	0.22	0.60	0.00	0.18	Plant Pathology
Allison, Richard	14	0.00	0.90	0.00	0.00	0.10	Molec. Virology
Fulbright, Dennis W.	12	0.00	1.00	0.00	0.00	0.00	Wheat Pathology
Hammerschmidt, Raymond	13	0.00	0.90	0.00	0.00	0.10	Plant Pathology
Hart, John H.	12	0.00	0.50	0.00	0.00	0.50	Plant Pathology
Hart, L. Patrick	12	0.00	0.50	0.50	0.00	0.00	Plant Pathology
Jones, Alan L.	12	0.00	0.50	0.50	0.00	0.00	Plant Pathology
Lacy, Melvyn L.	12	0.00	0.40	0.50	0.00	0.10	Plant Pathology
Ohlrogge, John	13	0.00	0.84	0.00	0.00	0.16	Plant Physiology
Ramsdell, Donald C.	12	0.00	0.50	0.50	0.00	0.00	Plant Virol. Path.
Safir, Gene R.	12	0.00	0.90	0.00	0.00	0.10	Plant Pathology
Sears, Barbara	13	0.00	0.25	0.00	0.00	0.75	Molecular Gen.
Somerville, Shauna	14	0.00	1.00	0.00	0.00	0.00	Plant Pathology
Stephens, Christine	12	0.00	0.10	0.90	0.00	0.00	Plant Pathology
Vargas, Joseph M., Jr.	12	0.00	0.50	0.15	0.00	0.35	Plant Pathology
SUBTOTALS:		0.00	9.01	3.65	0.00	2.34	
Other Faculty:		0.00	0.00	0.00	0.50	10.50	
TOTALS:		0.00	9.01	3.65	0.50	12.84	

Botany and Plant Pathology

Ph: (517) 355-4683

Crop & Soil Sciences

Ph: (517) 355-0271

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Anderson, Sharon J.	14	0.25	0.75	0.00	0.00	0.00	Surface Soil Chem.
Boyd, Stephen A.	12	0.25	0.75	0.00	0.00	0.00	Organic Chemistry
Branham, Bruce E.	13	0.25	0.75	0.00	0.00	0.00	Turfgrass Phys.
Chase, Richard W.	12	0.00	0.25	0.75	0.00	0.00	Crop Management
Christenson, Donald R.	12	0.00	0.50	0.50	0.00	0.00	Soil Fert. Mgmt.
Cress, Charles E.	12	0.90	0.10	0.00	0.00	0.00	Applied Statistics
Crum, James L.	13	0.60	0.25	0.00	0.00	0.15	Soil Class./Genesis
Douches, David S.	14	0.10	0.90	0.00	0.00	0.00	Potato Breed./Genet.
Ellis, Boyd G.	12	0.50	0.50	0.00	0.00	0.00	Soil Chemistry
Foster, Eunice F.	13	0.85	0.15	0.00	0.00	0.00	Crop Physiology
Freed, Russell D.	12	0.25	0.50	0.00	0.00	0.25	Int'l. Agron./Plnt. Brdg.
Harpstead, Dale D.	12	0.24	0.62	0.14	0.00	0.00	Int'l. Ag./Crop Prod.
Harwood, Richard R.**	12	0.20	0.60	0.20	0.00	0.00	Sustainable Ag.
Hesterman, Oran B.	13	0.00	0.23	0.77	0.00	0.00	Alfalfa/Forage Prod.
Jacobs, Lee W.	12	0.00	0.50	0.50	0.00	0.00	Ext. Environ. Spc.
Kells, James J., Jr.	13	0.15	0.25	0.60	0.00	0.00	Weed Science
Kelly, James D.	13	0.25	0.75	0.00	0.00	0.00	Dry Bean Breeding
Knezek, B.D.	12	0.50	0.50	0.00	0.00	0.00	Micronutr. Wst. Util.
Kunze, Raymond J.	12	0.38	0.62	0.00	0.00	0.00	Soil Physics
Leep, Richard H.	12	0.00	0.50	0.50	0.00	0.00	Soil Fert. & Ext.
Mokma, Delbert L.	12	0.50	0.50	0.00	0.00	0.00	Soil Class./Genesis
Moline, Waldimar J.	12	0.25	0.25	0.50	0.00	0.00	Forage Physiology
Penner, Donald	12	0.20	0.80	0.00	0.00	0.00	Crop Physiology
Pierce, J. Francis	13	0.30	0.70	0.00	0.00	0.00	Soil Mgmt. Systems
Renner, Karen A.	14	0.00	0.50	0.50	0.00	0.00	Weed Science
Rieke, Paul E.	12	0.00	0.35	0.50	0.00	0.15	Turfgrass Mgmt.
Ritchie, Joe. T.*	12	0.00	0.00	0.50	0.00	0.50	Soil Phys./Plt. Stress
Robertson, G. Phillip	13	0.22	0.38	0.00	0.00	0.40	Ecosystem Ecology
Rogers, John N. III	14	0.25	0.25	0.00	0.00	0.50	Turfgrass Mgmt.
Smucker, A.J.M.	12	0.25	0.75	0.00	0.00	0.00	Soil Biophysics
Sticklen, Mariam B.	14	0.00	0.60	0.00	0.00	0.40	Plant Transformation
Thomashow, Michael F.	13	0.10	0.76	0.00	0.00	0.14	Plant & Microbial Molecular Genetics
Tiedje, James M.	12	0.25	0.60	0.00	0.00	0.15	Soil Microbiology
Vitosh, Maurice L.	12	0.00	0.30	0.70	0.00	0.00	Soil Fert. Mgmt.
Ward, Richard W.	14	0.25	0.75	0.00	0.00	0.00	Wheat Breeding
Warncke, Darryl D.	12	0.00	0.50	0.50	0.00	0.00	Gnhs./Veg. Soil Fert.
SUBTOTALS:		8.24	17.96	7.16	0.00	2.64	
Other Faculty:		0.00	0.00	0.75	0.00	0.75	
TOTALS:		8.24	17.96	7.91	0.00	3.39	

*Nowlin Professor for Water Research

**C. S. Mott Distinguished Professor of Sustainable Agriculture

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Ayers, George S.	12	0.25	0.10	0.00	0.00	0.65	IPM/Apiculture
Bird, George W.	12	0.00	0.40	0.50	0.00	0.10	Agr. Nematology
Gage, Stuart H.	12	0.00	0.75	0.00	0.00	0.25	Env. Sys./Ent. Survey
Grafius, Edward J.	12	0.00	0.50	0.50	0.00	0.00	Veg. Ins. Eco. Mgt.
Haynes, Dean L.	12	0.00	0.75	0.00	0.00	0.25	Insect Pop. Ecol.
Hoopingarner, Roger A.	12	0.00	0.10	0.70	0.00	0.20	Apic. & Pollination
Johnson, James W.	14	0.00	0.25	0.75	0.00	0.00	Fruit Ins. Ecol.
Landis, Douglas A.	14	0.00	0.25	0.75	0.00	0.00	Field/Forage Insec.
Merritt, Richard W.	12	0.00	0.50	0.00	0.00	0.50	Aquatic Ins. Ecology
Miller, James R.	12	0.00	0.50	0.00	0.00	0.50	Ins. Physiol.
Olsen, Larry G.	13	0.00	0.25	0.75	0.00	0.00	Pest Educ. & IPM
Raikhel, Alexander S.	12	0.00	0.10	0.00	0.00	0.90	Insect Physiology
Simmons, Gary A.	12	0.00	0.30	0.50	0.00	0.20	Forest Ins. Ecology
Smitley, David R.	14	0.00	0.40	0.60	0.00	0.00	Land./Orn. Ins. Ecol.
Stehr, Frederick W.	12	0.00	0.50	0.00	0.00	0.50	Ins. Biocon./System.
Walker, Edward D.	14	0.00	0.33	0.33	0.00	0.34	Medical/Vet. Ento.
Whalon, Mark E.	12	0.00	0.63	0.00	0.00	0.37	Ins./Vector Dynam.
Zabik, Matthew	12	0.00	0.10	0.00	0.00	0.90	Env. Toxicology
SUBTOTALS:		0.25	6.71	5.38	0.00	5.66	
Other Faculty:		0.00	0.00	0.00	0.00	6.00	
TOTALS:		0.25	6.71	5.38	0.00	11.66	

Entomology

Ph: (517) 355-4662

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Gladhart, Peter M.	13	0.50	0.50	0.00	0.00	0.00	Fam. Res. Mgmt.
Keefe, Dennis R.	14	0.50	0.50	0.00	0.00	0.00	Family Econ.
SUBTOTALS:		1.00	1.00	0.00	0.00	0.00	
Other Faculty:		12.30	3.60	2.80	1.00	0.00	
TOTALS:		13.30	4.60	2.80	1.00	0.00	

Family and Child Ecology

Ph: (517) 355-7680

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Campa, Henry III	14	0.75	0.25	0.00	0.00	0.00	Wildlife Ecology
Coon, Thomas G.	14	0.50	0.50	0.00	0.00	0.00	Fisheries
Garling, Donald L.	12	0.20	0.30	0.50	0.00	0.00	Aquaculture
Giesy, John P.	12	0.35	0.65	0.00	0.00	0.00	Toxicology
Haufler, Jonathan B.	13	0.50	0.50	0.00	0.00	0.00	Wildlf. Ecol. Forest

Fisheries & Wildlife

Ph: (517) 355-4477

Fisheries & Wildlife

(continued)

McNabb, Clarence D.	12	0.26	0.74	0.00	0.00	0.00	Limnol. Ecol.
Peyton, R. Benny	12	0.58	0.42	0.00	0.00	0.00	Environ. Education
Prince, Harold H.	12	0.45	0.55	0.00	0.00	0.00	Waterfowl
Taylor, William W.	12	0.50	0.50	0.00	0.00	0.00	Fisheries
Winterstein, Scott R.	14	0.50	0.50	0.00	0.00	0.00	Wildlife Biometry
SUBTOTALS:		4.59	4.91	0.50	0.00	0.00	
Other Faculty:		2.63	0.00	0.80	0.00	1.57	
TOTALS:		7.22	4.91	1.30	0.00	1.57	

Food Science

Ph: (517) 355-8474

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Booren, Alden M.	13	0.10	0.15	0.75	0.00	0.00	Meat/Poultry/Fish
Cash, Jerry N.	12	0.00	0.25	0.75	0.00	0.00	Fruit/Veg. Products
Gray, J. Ian	12	0.00	0.25	0.00	0.00	0.75	Food Chemistry
Helferich, William G.	14	0.35	0.65	0.00	0.00	0.00	Muscle Biochemistry & Food Toxicology
Linz, John E.	14	0.50	0.50	0.00	0.00	0.00	Food Microbiology
Partridge, John A.	13	0.75	0.25	0.00	0.00	0.00	Dairy Technology
Pestka, James J.	13	0.50	0.50	0.00	0.00	0.00	Food Microbiology
Price, James F.	12	0.50	0.50	0.00	0.00	0.00	Meat/Poultry Prod.
Smith, Denise M.	13	0.40	0.60	0.00	0.00	0.00	Poultry/Egg Prod.
Strasburg, Gale M.	14	0.40	0.60	0.00	0.00	0.00	Muscle Biochemistry
Uebersax, Mark A.	12	0.40	0.60	0.00	0.00	0.00	Fruit/Veg. Products
Wishnetsky, Theodore	13	0.25	0.25	0.50	0.00	0.00	Fruit/Veg. Products
SUBTOTALS:		4.15	5.10	2.00	0.00	0.75	
Other Faculty:		0.00	0.00	0.00	0.00	0.00	
TOTALS:		4.15	5.10	2.00	0.00	0.75	

Forestry

Ph: (517) 355-0090

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Dickmann, Donald I.	12	0.40	0.60	0.00	0.00	0.00	Tree Physiology
Hanover, James W.	12	0.30	0.70	0.00	0.00	0.00	Forest Genetics
Hart, James B., Jr.	13	0.50	0.50	0.00	0.00	0.00	Forest Soils
Huber, Henry A.	12	0.00	0.10	0.90	0.00	0.00	Forest Products
Kielbaso, Julian J.	12	0.60	0.40	0.00	0.00	0.00	Urban Forestry
Lantagne, Douglas O.	13	0.00	0.20	0.80	0.00	0.00	Silviculture
Leefers, Larry A.	13	0.50	0.50	0.00	0.00	0.00	Forest Economics
Manthy, Robert S.	12	0.50	0.50	0.00	0.00	0.00	Forest Economics
Marty, Robert J.	12	0.70	0.30	0.00	0.00	0.00	Forest Management
McDonough, Maureen H.	12	0.35	0.15	0.50	0.00	0.00	Environmental Interp.
Potter-Witter, Karen L.	14	0.10	0.30	0.60	0.00	0.00	Forest Economics

Pregitzer, Kurt S.	13	0.40	0.60	0.00	0.00	0.00	Forest Ecology
Ramm, Carl W.	13	0.40	0.60	0.00	0.00	0.00	Forest Biometrics
Sliker, Alan W.	12	0.30	0.70	0.00	0.00	0.00	Wood Science
Suchsland, Otto M.	12	0.20	0.80	0.00	0.00	0.00	Wood Science
SUBTOTALS:		5.25	6.95	2.80	0.00	0.00	
Other Faculty:		0.20	0.00	0.80	0.00	0.00	
TOTALS:		5.45	6.95	3.60	0.00	0.00	

Forestry

(continued)

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Chubb, Michael	12	0.50	0.33	0.00	0.17	0.00	Recreational Geography
SUBTOTALS		0.50	0.33	0.00	0.17	0.00	
Other Faculty:		15.03	12.29	0.00	0.17	2.51	
TOTALS:		15.53	12.62	0.00	0.34	2.51	

Geography

Ph: (517) 355-4649

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Beaudry, Randolph M.	14	0.00	0.50	0.50	0.00	0.00	Postharv. Phys./Fruit & Veg.
Biernbaum, John A.	13	0.45	0.20	0.00	0.00	0.35	Plant Phys./Flori.
Bukovac, Martin J.	12	0.10	0.90	0.00	0.00	0.00	Plant Phys./Pomol.
Cameron, Arthur C.	13	0.30	0.70	0.00	0.00	0.00	Plnt. Phys./Lnds. Hort.
Carlson, William H.	12	0.15	0.35	0.50	0.00	0.00	Flori./Phys. & Bedding
Dennis, Frank G., Jr.	12	0.60	0.40	0.00	0.00	0.00	Plant Phys./Pomol.
Dilley, David R.	12	0.20	0.80	0.00	0.00	0.00	Posthar. Phys./Pomol.
Ewart, Lowell C.	12	0.10	0.60	0.00	0.00	0.30	Floral/Onion Brdg.
Flore, James A.	12	0.35	0.65	0.00	0.00	0.00	Plant Phys./Pomol.
Grumet, Rebecca	14	0.10	0.90	0.00	0.00	0.00	Veg. Brdg./Genetics
Hancock, James F.	12	0.10	0.90	0.00	0.00	0.00	Sm. Frt. Brdg./Genetics
Hanson, Eric J.	13	0.00	0.35	0.65	0.00	0.00	Pomol. Small Fruits
Heins, Royal D.	12	0.25	0.75	0.00	0.00	0.00	Plant Phys./Flori.
Herner, Robert C.	12	0.35	0.65	0.00	0.00	0.00	Psthar. Phys./Veg. Crop
Howell, Gordon S.	12	0.20	0.80	0.00	0.00	0.00	Plt. Phys./Vitic./Enology
Hull, Jerome, Jr.	12	0.00	0.20	0.80	0.00	0.00	Pomol./Phys. & Culture
Iezzoni, Amy F.	13	0.20	0.80	0.00	0.00	0.00	Fruit Breed./Genet.
Kelly, John	12	0.23	0.66	0.11	0.00	0.00	Veg. Composition
Nair, Muraleedharan	14	0.50	0.50	0.00	0.00	0.00	Natural Products
Perry, Ronald L.	13	0.00	0.50	0.50	0.00	0.00	Pomol./Rootstocks
Ries, Stanley K.	12	0.20	0.80	0.00	0.00	0.00	Plant Phys./Veg.
Schutzki, Robert E.	14	0.15	0.10	0.00	0.00	0.75	Landscape Hort.

Horticulture

Ph: (517) 355-5191

Horticulture

(continued)

Sink, Kenneth C.	12	0.25	0.75	0.00	0.00	0.00	Genet./Plant Brdg.
Widders, Irvin E.	13	0.25	0.75	0.00	0.00	0.00	Veg. Physiology
Zabadal, Thomas J.	13	0.00	0.50	0.50	0.00	0.00	Viticulture
Zandstra, Bernard H.	12	0.00	0.25	0.75	0.00	0.00	Vegetable Crops
SUBTOTALS:		5.03	15.26	4.31	0.00	1.40	
Other Faculty:		0.35	0.00	0.55	0.00	1.10	
TOTALS:		5.38	15.26	4.86	0.00	2.50	

Human Environment & Design

Ph: (517) 355-7712

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Graham, Richard L.	13	0.75	0.25	0.00	0.00	0.00	Interior Design/ Hist. Preservation
Slocum, Ann C.	13	0.75	0.25	0.00	0.00	0.00	Clothing & Textiles
Sontag, M. Suzanne	12	0.75	0.25	0.00	0.00	0.00	Clothing & Textiles
Sternquist, Brenda	13	0.75	0.25	0.00	0.00	0.00	Tourism/Merc. Mgmt.
SUBTOTALS:		3.00	1.00	0.00	0.00	0.00	
Other Faculty:		16.75	0.00	2.50	0.00	0.00	
TOTALS:		19.75	1.00	2.50	0.00	0.00	

Human Nutrition

Ph: (517) 355-8474

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Andrews, Sandra L.	14	0.00	0.25	0.75	0.00	0.00	Food Safety
Bennink, Maurice R.	12	0.50	0.50	0.00	0.00	0.00	Nutrition
Bond, Jenny T.	12	0.60	0.40	0.00	0.00	0.00	Nutrition
Chenoweth, Wanda L.	12	0.75	0.25	0.00	0.00	0.00	Nutrition
Hoerr, Sharon M.	13	0.75	0.25	0.00	0.00	0.00	Community Nutrition
Ott, Dana B.	14	0.50	0.50	0.00	0.00	0.00	Foods & Nutrition
Romsos, Dale R.	12	0.30	0.70	0.00	0.00	0.00	Lipid Metabolism
Sawyer, Carol A.	13	0.75	0.25	0.00	0.00	0.00	Food Service Mgmt.
Schemmel, Rachelle A.	12	0.70	0.30	0.00	0.00	0.00	Nutrition
Song, Won O.	13	0.75	0.25	0.00	0.00	0.00	Nutrition
Zabik, Mary E.	12	0.00	0.20	0.00	0.00	0.80	Foods
Zile, Maija H.	12	0.50	0.50	0.00	0.00	0.00	Nutrition
SUBTOTALS:		6.10	4.35	0.75	0.00	0.80	
Other Faculty:		2.00	0.00	0.00	0.00	0.00	
TOTALS:		8.10	4.35	0.75	0.00	0.80	

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Bush, Guy L.	12	0.00	0.10	0.00	0.00	0.90	Genetics
SUBTOTALS:		0.00	0.10	0.00	0.00	0.90	
Other Faculty:		0.00	0.00	0.00	0.00	0.00	
TOTALS:		0.00	0.10	0.00	0.00	0.90	

Kellogg Biological Station

Ph: (517) 353-9445

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Baker, John C.	13	0.00	0.20	0.00	0.00	0.80	Bov. Resp. Diseases
Herd, Thomas H.	13	0.00	0.25	0.00	0.00	0.75	Nutr. & Metabolic Diseases of Cattle
Holland, Robert E.	13	0.00	0.34	0.00	0.00	0.66	Bovine Enteric Dis.
Kaneene, John B.	12	0.00	0.14	0.00	0.00	0.86	Epidem./Dis. Impact
Robinson, Norman E.	12	0.00	0.30	0.00	0.00	0.70	Respir. Physiology
Stowe, Howard D.	12	0.00	0.30	0.00	0.00	0.70	Clinical Nutrition
Thacker, Brad J.	13	0.00	0.39	0.00	0.00	0.61	Swine Medicine
SUBTOTALS:		0.00	1.92	0.00	0.00	5.08	
Other Faculty:		0.00	0.00	2.00	18.00	3.40	
TOTALS:		0.00	1.92	2.00	18.00	8.48	

Large Animal Clinical Sciences

Ph: (517) 355-9593

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Breznak, John A.	12	0.00	0.30	0.00	0.00	0.70	Microbial Ecology
Champness, Wendy C.	14	0.00	0.50	0.00	0.00	0.50	Microbial Genetics
Dazzo, Frank B.	12	0.00	0.80	0.00	0.00	0.20	Microbial Ecology
Hausinger, Robert P.	13	0.00	0.40	0.00	0.00	0.60	Microbiology
Klug, Michael J.	12	0.00	0.25	0.00	0.00	0.75	Microbial Ecology
Reddy, C. Adinarayana	12	0.00	0.50	0.00	0.00	0.50	Microbiology
Uffen, Robert L.	12	0.00	0.49	0.00	0.00	0.51	Microbial Physiology
Velicer, Leland F.	12	0.00	0.30	0.00	0.00	0.70	Virology
SUBTOTALS:		0.00	3.54	0.00	0.00	4.46	
Other Faculty:		15.00	15.00	0.00	0.00	0.00	
TOTALS:		15.00	18.54	0.00	0.00	4.46	

Microbiology & Public Health

Ph: (517) 355-6463

Packaging

Ph: (517) 355-9580

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Giacin, Jack R.	12	0.50	0.50	0.00	0.00	0.00	Packaging
Hernandez, Ruben J.	14	0.50	0.50	0.00	0.00	0.00	Packaging
Lee, Julian J. L.	13	0.80	0.20	0.00	0.00	0.00	Packaging
SUBTOTALS:		1.80	1.20	0.00	0.00	0.00	
Other Faculty:		6.38	0.95	0.00	0.50	0.00	
TOTALS:		8.18	2.15	0.00	0.50	0.00	

Park & Recreation Resources

Ph: (517) 353-5190

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Fridgen, Joseph D.	12	0.40	0.60	0.00	0.00	0.00	Leisure/Env. Perc.
Holecek, Donald F.	12	0.00	0.75	0.25	0.00	0.00	Res. Econ./Tourism
Moncrief, Lewis W.	12	0.56	0.24	0.20	0.00	0.00	Res. Dev./Liability
Stynes, Daniel J.	12	0.50	0.50	0.00	0.00	0.00	Sys. Analysis & Plan.
SUBTOTALS:		1.46	2.09	0.45	0.00	0.00	
Other Faculty:		0.00	0.00	0.00	0.00	0.00	
TOTALS:		1.46	2.09	0.45	0.00	0.00	

Pathology

Ph: (517) 353-9160

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Bell, Thomas G.	12	0.00	0.25	0.00	0.00	0.75	Compar. Pathology/ Platelet Function
Mullaney, Thomas	13	0.00	0.25	0.00	0.00	0.75	Gastroin. Diseases
Padgett, George A.	12	0.00	0.25	0.00	0.00	0.75	Comp. Vet. Path.
Patterson, Jon	12	0.00	0.25	0.00	0.00	0.75	Vet. Pathology of Infectious Dis./Ani.
Render, James A.	13	0.00	0.23	0.00	0.00	0.77	Ophthalmic Pathology
Sleight, Stuart D.	12	0.00	0.50	0.00	0.00	0.50	Toxicologic Path.
SUBTOTALS:		0.00	1.73	0.00	0.00	4.27	
Other Faculty:		13.03	1.66	0.50	0.00	1.00	
TOTALS:		13.03	3.39	0.50	0.00	5.27	

Physiology

Ph: (517) 355-6475

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Dukelow, W. Richard	12	0.00	0.40	0.00	0.00	0.60	Repro. Physiology
Hootman, Seth	14	0.00	0.50	0.00	0.00	0.50	Cellular Physiology
Zipser, Birgit	13	0.00	0.47	0.00	0.00	0.53	Cell Biology
SUBTOTALS:		0.00	1.37	0.00	0.00	1.63	
Other Faculty:		0.00	18.25	0.00	0.00	0.00	
TOTALS:		0.00	19.62	0.00	0.00	1.63	

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Bronstein, Daniel A.	12	0.60	0.40	0.00	0.00	0.00	Env. Policy & Law
Chappelle, Daniel E.	12	0.60	0.07	0.00	0.00	0.33	Res. Econ. & Pol.
Dersch, Eckhart	12	0.25	0.10	0.65	0.00	0.00	Nat. Res. Mgmt.
Edens, Thomas C.	12	0.00	0.80	0.00	0.00	0.20	Res. Econ. & Pol.
Kakela, Peter J.	12	0.20	0.60	0.20	0.00	0.00	Nat. Res. Mgmt.
Kimball, William J.	12	0.20	0.10	0.70	0.00	0.00	Comm. & Reg. Dev.
Nickel, Paul E.	12	0.75	0.25	0.00	0.00	0.00	Res. Econ. & Pol.
Schultink, Gerhardus	13	0.75	0.25	0.00	0.00	0.00	Nat. Res. Mgmt.
Thullen, Manfred	12	0.02	0.16	0.00	0.00	0.82	Comm. & Reg. Dev.
Vlasin, Ray	12	0.30	0.30	0.40	0.00	0.00	Comm. & Reg. Dev.
SUBTOTALS:		3.67	3.03	1.95	0.00	1.35	
Other Faculty:		4.55	0.00	0.30	0.00	0.00	
TOTALS:		8.22	3.03	2.25	0.00	1.35	

Resource Development

Ph: (517) 355-3421

NAME	RANK	FULL TIME EMPLOYEE—PERCENT					AREA OF INTEREST
		T	R	E	G	J	
Bokemeier, Janet L.	12	0.00	0.50	0.00	0.00	0.50	Farm Fam./Labor Mkts.
Busch, Lawrence M.	12	0.00	0.50	0.00	0.00	0.50	Struc. of Agr. Sci./ Agr. Res. Policy
Harris, Craig K.	13	0.00	0.50	0.00	0.00	0.50	Soc. of Agriculture
Johnson, Nan E.	12	0.00	0.50	0.00	0.00	0.50	Demography
Schwarzweiler, Harry K.	12	0.00	0.50	0.00	0.00	0.50	Soc. of Agriculture
SUBTOTALS:		0.00	2.50	0.00	0.00	2.50	
Other Faculty:		19.00	0.00	0.00	0.00	2.00	
TOTALS:		19.00	2.50	0.00	0.00	4.50	

Sociology

Ph: (517) 355-6640

GRAND SUBTOTALS:	64.29	131.73	44.10	0.54	45.34	
GRAND TOTALS:	186.73	186.53	68.95	25.81	123.01	

List of Active AES Projects* by Department

*Signifies Regional Research Project

As of October 1, 1990



Agricultural Economics

Project 442	Economics Of Agricultural Development And Change	Johnson, G.L.
Project 996	Assessments Of Consumer Reactions To New Food Products And Marketing Services	Zehner, M.D.
Project 1079	Health Care Systems As They Serve Rural People	Stevens, R.D.
Project 1197	Economic And Policy Factors Affecting Domestic And International Markets For U.S. Agricultural Products	Sorenson, V.L.
Project 1329	Improved Fruit And Vegetable Marketing Systems	Ricks, D.J.
Project 1498*	Determinants Of Farm Size And Structure In North Central Areas Of The U.S.	Robison, L.
Project 1502	The Performance Of Coordinating Functions And Institutions Of The U.S. Food System	Shaffer, J.D.
Project 1505	Improving Economic And Marketing Intelligence In The Food System	Ferris, J.
Project 1518*	Benefits And Costs In Natural Resource Planning	Hoehn, J.
Project 1519*	Private Strategies, Public Policies, And Food System Performance	van Ravenswaay, E.
Project 1530*	Competition And Change In The Fruit And Vegetable Production And Marketing Systems	Ricks, D.
Project 1539	Analysis Of Agricultural Production And Farm Level Marketing Systems	Black, J.
Project 1566*	The Organization And Performance Of World Food Systems: Implications For U.S. Policy	Shaffer, J.
Project 1567*	Quantifying Long Run Agricultural Risks And Evaluating Farmer Responses To Risk	Robison, L.
Project 1576*	Farm Information Systems	Harsh, S.
Project 1585*	Financing Agriculture In Changing Environment: Macro, Market, Policy, And Management Issues	Hanson, S.
Project 1588*	Impact Of Transportation Changes On Agricultural Marketing And Local Communities	Hanson, S.
Project 1592*	Analyses Of Selected Economic Factors Affecting The Long Run Viability Of The Northern Dairy Industry	Hamm, L.
Project 1605*	National And Regional Analysis, Evaluation, Planning And Financing Of Agricultural Research	Oehmke, J.
Project 3131	Agricultural Economics Research: Problems Of Less Developed Countries	Weber, M.
Project 3800	Risk Perception, Measurement And Analysis: Ground Water, Food And Rural Areas	Hoehn, J.
Project 3807	An Analysis Of The Status Of Michigan Agriculture And Research And Extension Implications	Connor, L.

Agricultural Engineering

Project 1050*	Principles And Technology For Handling And Sorting Fruits And Vegetables	Segerlind, L.J.
Project 1245*	Improvement Of Thermal Processes For Foods	Steffe, J.F.
Project 1361*	Marketing And Delivery Of Quality Cereals And Oilseeds	Bakker-Arkema, F.W.
Project 1427*	Integrated Irrigation Water And Nitrogen Management To Sustain Ground Water Quality And Quantity	Loudon, T.
Project 1431*	Trickle Irrigation In Humid Regions	Bralts, V.
Project 1495	Laser Raman Spectroscopy Applied To Food And Biochemical Engineering	Berglund, K.A.
Project 1548	Bio-Catalyzed Reactive Extrusion Of Carbohydrates	Ofoli, R.
Project 1564*	The Effect Of Water Table Management On Productivity And Water Quality	Merva, G.
Project 1577	Systems For Value-Added Processing Of Food And Agricultural Products	Srivastava, A.
Project 1578	Water Management And Transport In Biological And Agricultural Systems	Merva, G.
Project 1579	Development Of Machine Concepts For Mechanized Agriculture	Ledebuhr, R.
Project 1580	Storage And Handling Of Agricultural Crops	Brook, R.
Project 1581	Value-Added Quality Control Techniques In The Postharvest Stages Of Fruit And Vegetable Products	Guyer, D.
Project 1582	Sensors And Automatic Control In Agriculture	Gerrish, J.
Project 1583	Development Of Chemical Application Technology For The Agribusiness Industry	VanEe, G.
Project 1591*	Micro-Irrigation For Optimum Crop Productivity And Minimum Groundwater Contamination	Bralts, V.
Project 1594	Influence Of Environment On Animal Performance And Behavior	Bickert, W.G.
Project 1603	Modelling Machinery Systems For Field Crop Production	Burkhardt, T.H.
Project 3293	Great Lakes Influence On Michigan Climate	Nurnberger, F.
Project 3303	Deposition Efficiency Of Chemical Application	Wilkinson, R. H.
Project 7556	Bioprocessing For Utilization Of Agricultural Raw Materials	Berglund, K.A.

Anatomy

Project 6860	Peptidergic Mediation Of Arthritis/Laminitis Disease	Bowker, R.M.
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Animal Science

Project 44	Biological And Biochemical Effects Of Certain Nutritional And Physical Factors In Swine	Miller, E.R.
Project 102*	Improving Dairy Cattle Genetically	McGilliard, L.D.
Project 859	Hormonal Control Of Reproduction In Cattle, Sheep And Swine	Dukelow, W.R.
Project 1039	Fur Animal Studies (Mink)	Aulerich, R.J.
Project 1156*	Dairy Herd Management Strategies For Improved Decision Making And Profitability	Mellenburger, R.
Project 1163	Factors Controlling Growth And Lactation	Tucker, H.A.

Animal Science

(continued)

Project 1178	Breeding Strategies To Maximize Economic Gain In Dairy Cattle Production	Mao, I.L.
Project 1182*	Factors Regulating Protein Synthesis, Degradation, And Growth In Skeletal Muscle	Bergen, W.G.
Project 1196*	Methods For Improvement Of Fertility In Cows Postpartum	Fogwell, R.L.
Project 1226	Protein And Amino Acid Nutrition And Metabolism In Ruminants	Bergen, W.G.
Project 1278	Improvement Of Design And Analysis Of Animal Experiments	Gill, J.L.
Project 1318	Utilization Of Fiber By Ruminants	Cook, R.M.
Project 1437	Increasing Milk Solids Secretion	Emery, R.S.
Project 1450	Poultry Disease Studies Of Current Significance	Chang, T.
Project 1521*	Metabolic Relationships In Supply Of Nutrients For Lactating Cows	Emery, R.
Project 1528*	Skeletal Problems In Poultry	Flegal, C.
Project 1541	Nutritional And Related Factors Impacting On Avian Growth, Reproduction, And Metabolism	Polin, D.
Project 1573	The Physiological Role Of Ovarian Inhibins	Ireland, J.J.
Project 1575*	Increasing Prolificacy In Sheep And Its Impact On Nutritional Needs	Benson, M.
Project 1596*	The Genetics Of Body Composition In Beef	Ritchie, H. D.
Project 1604	Nutritional Regulation Of Protein Production In Ruminants	Vandehaar, M.J.
Project 3014	Maximum Utilization Of Michigan Grown Feedstuffs For Growing And Finishing Cattle	Rust, S.R.
Project 3047	Feeding And Management Regimes For Efficient Utilization Of Michigan Feedstuffs By Beef Cattle	Ritchie, H.D.
Project 3117	Nutrition And Physiology Of The Horse	Ullrey, D.E.
Project 3217	The Fate And Biological Effects Of Xenobiotics In Farm Animal Species	Bursian, S.
Project 3304	Basic And Applied Studies Utilizing Domestic And Semi-Domestic Avian Species As Research Animals	Balander, R.
Project 6833	P-cresol Production In The Intestinal Tract Of The Pig	Yokoyama, M.
Project 6841	Electronic Monitors For Detection Of Health In Stressed Cattle	Rust, S.
Project 6845	Characterizations Of Shifts In Cecal Bacterial Fermentation Induced By Growth Promoting Antibiotics	Yokoyama, M.
Project 6849	Photoperiodic Suppression Of Melatonin	Tucker, A.
Project 6852	Construction Of Recombinant Marek's Disease Herpesvirus Genome For Vaccine Development And Improvement	Coussens, P.
Project 7549	Photoperiod-Induced Changes In Mammary Growth In Pregnant Dairy Heifers	Tucker, A.
Project 8046	Photoperiodic Regulation Of Hypothalamic And Pituitary Cells	Tucker, A.
Project 8058	Regulatory Regions Of Marek's Disease Virus	Coussens, P.
Project 8062	Regulation Of Inhibin And Its Genes During Development Of Dominant Follicles	Ireland, J.J.

Biochemistry

Project 1212	Structure-Activity Relationships Of The Freeze-Inhibitor Polysaccharides Of Winter Rye and Barley	Kindel, P.K.
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Project 1219	Plant Respiration	Tolbert, N.E.
Project 1223	The Interrelationships Between Dietary Zinc Status And Immune Function	Fraker, P.
Project 1290*	Regulation Of Photosynthetic Processes	Tolbert, N.E.
Project 1503	Metabolism Of Starch Synthesis	Preiss, J.
Project 1543	Role Of Carnitine Acyltransferases In The Regulation Of Cellular Metabolism	Bieber, L.
Project 1546	Development Of A Computerized Fluorimeter And Its Application To Chemical And Biochemical Problems	Holland, J.
Project 1547	Development Of Quantitative Vapor Phase Methodology For Steroids	Watson, J.
Project 1586	Molecular Mechanisms Of Action Of Halogenated Aromatic Hydrocarbons	Denison, M.
Project 1598	Temporal And Spatial Gene Regulation In <i>Bacillus Subtilis</i>	Kroos, L.R.
Project 1601	DNA Replication And Its Regulation In <i>Escherichia Coli</i>	Kaguni, J.
Project 1608	Activation Of Gene Expression By A Herpes Simplex Virion Protein	Triezenberg, S.
Project 1609	Expression Of Carbohydrate Binding Protein 35 In Fibroblasts As A Function Of Replicative Life Span	Anderson, R.
Project 1610	Transcription Factors That Bind To RNA Polymerase II	Burton, Z.F.
Project 8032	Alteration Of Immune Development By Gestational Zinc Deprivation	Fraker, P.J.
Project 8054	Alteration Of Immune Development By Gestational Zinc Deprivation	Fraker, P.
Project 8057	Glycerol Phosphate And Glycerol Production In Plants And Algae	Byerrum, R.
Project 8065	Soybean Nodule Glutamine: PRPP Amidotransferase: Purification And Properties	Deits, T.
Project 8070	Role Of Carnitine And Acetylcarnitine In Host Defense Processes Of Human MNP	Bieber, L.L.

Biochemistry

(continued)

Project 1111	Diseases Of Vegetable And Mint Crops And Their Control	Lacy, M.L.
Project 1125*	Virus And Virus-Like Diseases Of Woody, Deciduous Fruit Crops	Ramsdell, D.C.
Project 1176	Diseases Of Woody Plants—Biology And Control	Hart, J.H.
Project 1206*	Biological Control Of Soil-Borne Plant Pathogens In Integrated Crop Management Systems	Lockwood, J.L.
Project 1255*	Detection, Survival, Infection And Control Of Phytobacterial Pathogens On Seeds And Plant Parts	Fulbright, D.
Project 1259*	Occurrence Of Mycotoxins And The Implications To Animal And Human Health	Hart, L.P.
Project 1408*	Biological Improvement Of Chestnut (<i>Castanea, Sp.</i>)	Fulbright, D.W.
Project 1491	Genetics, Taxonomy And Biology Of Fungal Pathogens Of Economic Crops: <i>Cytospora</i> And <i>Fusarium</i>	Adams, G.
Project 1499	Mycorrhizal Root Colonization In Relation To Photosynthate, Water And Nutrient Utilization	Safir, G.R.
Project 1513	Hybrid Variegation In <i>Phaseolus Vulgaris</i>	Sears, B.B.
Project 1533	Genetic Engineering Of Oilseed Crops	Ohlrogge, J.
Project 1556	Ecology Of Root-Infecting Fungi In Soil And Investigations Of Soybean Diseases	Lockwood, J.
Project 1562	Physiology Of Resistance And Induced Resistance To Disease In Potato	Hammerschmidt, R.

Botany & Plant Pathology

Botany & Plant Pathology

(continued)

Project 3123	Etiology, Epidemiology And Control Of Fungal Diseases Of Small Fruit Crop Diseases	Ramsdell, D.C.
Project 3183	Diseases Of Tree Fruit Crops And Their Control	Jones, A.L.
Project 3275	Stress Factors Contributing To The Asparagus Decline Syndrome And Replant Problem	Stephens, C.
Project 7547	An Integrated Approach To Blueberry Virus Disease Control	Ramsdell, D.
Project 7548	Asparagus Decline Syndrome And Replant Problem In Michigan	Stephens, C.
Project 7552	Development Of Fusarium Yellows Disease Resistance In Celery	Lacy, M.
Project 8028	Hypovirulence: A Mechanism To Regulate Endothia Parasitica In Forest Ecosystem	Fulbright, D.
Project 8040	Regulation Of Fatty Acid Synthesis Proteins In Soybean	Ohlrogge, J.B.
Project 8059	Center For Genetic And Biochemical Alteration Of Plant Lipids And Starch	Ohlrogge, J.B.

Chemistry

Project 8042	Charge Separation And Stabilization In Chloroplast Photosystem II	Babcock, G.
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Civil & Environmental Engineering

Project 7540	Application Of Cellulose Fibers To Cement-Based Composites	Soroushian, P.
Project 7570	Development Of Specialty Wood Fibers For The Reinforcement Of Cement	Soroushian, P.

Crop & Soil Sciences

Project 319	Classification, Genesis And Evaluation Of Michigan Soils	Mokma, D.L.
Project 427	Micronutrient Status Of Michigan Soils	Knezek, B.D.
Project 569	Breeding And Testing Small Grain Cultivars In Michigan	Freed, R.D.
Project 908	Fundamental Factors In Cultural And Chemical Weed Control, Weed Competition, And Weed Life Cycles	Renner, K.A.
Project 1013	Development Of Improved Bean Varieties In Several Classes To Serve Growers And Industry Of Michigan	Adams, M.W.
Project 1063*	Nutrient Management In Conservation Tillage To Improve Productivity And Environmental Quality	Ellis, B.G.
Project 1103	Adsorption, Transformation And Release Of Inorganic Nutrients By Soils	Ellis, B.G.
Project 1124	Efficient Use Of Plant Nutrients	Vitosh, M.L.
Project 1462*	Soil Productivity And Erosion	Mokma, D.
Project 1471*	Chemistry And Bioavailability Of Waste Constituents In Soils	Jacobs, L.W.
Project 1492	Modeling Crop Responses And Environmental Factors Related To Shortage And Excesses Of Water	Ritchie, J.
Project 1497*	Environmental And Genotypic Control Of Assimilate Allocation In Crops	Smucker, A.J.M.
Project 1522	Plant Growth And Development	Foster, E.

Crop & Soil Sciences

(continued)

Project 1526	Role Of Microorganisms In Plant Nutrition	Paul, E.A.
Project 1529*	Seed Production Of Breeding Lines Of Insect-Pollinated Forage Legumes	Leep, R.
Project 1538	Harvest And Storability Of Sugarbeet Roots	Theurer, J.
Project 1561*	Forage Protein Characterization And Utilization For Beef Cattle	Hesterman, O.
Project 1568	Plant Biotechnology: Molecular Approaches To Improve Plant Stress Tolerance	Thomashow, M.F.
Project 1569*	Conservation Tillage Systems	Pierce, F.
Project 1574	Movement And Degradation Of Organic Contaminants In Soils And Sediments	Boyd, S.
Project 1587	The Physiology And Biochemistry Of Herbicide Action, Selectivity And Degradation	Penner, D.
Project 1595	Impact Absorption, Traction, And Wear Tolerance Investigations On Turf And Soil Surfaces	Rogers, J.N.
Project 1600	Microbial Ecology Of Denitrification And Biodegradation	Tiedje, J.M.
Project 3122	Development And Correlation Of Soil Test Procedures With Crop Yields And Plant Nutrient Contents	Warncke, D.D.
Project 3128	Systems Of Cropping	Christenson, D.R.
Project 3253	Computer Simulation Of Soil Water Infiltration Into Michigan Soils	Kunze, R.J.
Project 3260	Crop Management Studies In Northern Michigan	Leep, R.H.
Project 3282	Enhancing Profitability And Sustainability Of Crop Production Systems For Michigan Farmers	Hesterman, O.
Project 3295	Cultural And Management Factors Affecting Potato Quality	Chase, R.
Project 3296	Weed Management As A Component Of Field Crop Production Systems In Michigan	Kells, J.
Project 3300	Design Of Experiments	Cress, C.
Project 3301	Soils And Landscapes Of Michigan	Crum, J.R.
Project 3302	Management Of Organic Soils For Crop Production	Warncke, D. D.
Project 3802	Development Of Production, Marketing And Utilization Of Canola As An Alternative Crop In Michigan	Copeland, L.
Project 7543	Resource Efficient Cropping Systems For Dry Bean And Sugar Beet Production	Christenson, D.
Project 7545	Improved Production And Utilization Technology For Michigan Potatoes	Chase, R.
Project 8060	Cold Adaptation In Arabidopsis Thaliana	Thomashow, M.F.

Entomology

Project 193	Fruit Tree Insects	Howitt, A.J.
Project 401	Apiculture And Crop Pollination	Hoopingarner, R.
Project 1067*	Variables In Agricultural Weather Information Systems	Gage, S.
Project 1108	Integrated Control Of Tree Fruit Pests	Whalon, M.E.
Project 1187	Biological Control Of Selected Insect Pests In Michigan	Stehr, F.W.
Project 1213	Management Of Defoliating Insects And Related Secondary Insects	Simmons, G.A.

Entomology

(continued)

Project 1294*	Black Fly Damage Thresholds, Biology And Control	Merritt, R.W.
Project 1322	Biology And Management Of Insect Pests Of Vegetable Crops	Grafius, E.J.
Project 1331*	Interaction Of Nematode-Host Variability And Abiotic Factors On Crop Losses	Bird, G.W.
Project 1482	Biotic And Abiotic Stress Interactions Between Insects And Their Host Plants	Gage, S.
Project 1488*	The Gypsy Moth And Its Natural Enemies: Behavior And Population Determinants	Simmons, G.A.
Project 1489*	Impact Of Integrated Crop Management Practices On European Corn Borer And Related Stalk Boring Insects	Scriber, M.
Project 1537	Insect Vectors Of Plant Diseases: Identification, Characterization And Management	Whalon, M.
Project 1563*	Spatial Dynamics Of Leafhopper Pests And Their Management On Alfalfa	Whalon, M.
Project 1584*	Design And Evaluation Of New Approaches For The Management Of Plant-Parasitic Nematodes	Bird, G.
Project 1606	Management Of Insect And Mite Pests Of Greenhouse, Landscape, And Turfgrass	Smitley, D.
Project 1611	Insect Management: An Ecosystem Analysis Approach For Preventive Pest Management	Haynes, D.L.
Project 1613	Factors Regulating Insect Host-Plant Colonization	Miller, J.R.
Project 3114	Management Of Man-Biting Insect Problems In Michigan	Newson, H.D.
Project 3269	Using Behavior To Improve Pesticide Efficiency And Reduce Nontarget Impact	Ayers, G.
Project 3291	Meteorological Influences On Agricultural Crops And Pests	Gage, S.
Project 3294	Michigan State University Insect Museum	Stehr, F.
Project 3299	Management Of Field And Forage Crop Insects In Michigan	Landis, D.
Project 7527	Management Of Insecticide Resistance In The Colorado Potato Beetle	Grafius, E.J.
Project 7558	Dispersal And Insecticide Resistance In The Colorado Potato Beetle	Grafius, E.J.
Project 8035	Cull Onions As Trap Crop For Onion Maggot	Miller, J.
Project 8051	Chemical Ecology Of Papilionidae: Physiology And Biochemistry Of Host Plant Use	Scriber, M.

Family & Child Ecology

Project 1500	Assessing The Physical And Emotional Consequences Of Financial Distress In Michigan Farm Families	Soderman, A.
Project 1507*	Family Resource Utilization As A Factor In Determining Economic Well-Being Of Rural Families	Keefe, D.
Project 1523*	At-Home-Income-Generation: Impact On Management, Productivity And Stability In Rural/Urban Families	Walker, R.
Project 1590*	Housing And Locational Decisions Of The Maturing Population: Opportunities For The Western Region	Schiamberg, L.
Project 3251	Profile Of Michigan Youth: 10-14 Years Of Age—1983, 1987	Keith, J.G.
Project 3287	A Longitudinal Study Of Family Stress	Bubolz, M.
Project 3801	Economic, Social And Personal Well-Being Of Michigan Farm Families In Transition	Walker, R.

Fisheries & Wildlife

Project 940	Ecological Relationships Of Pesticides, Radionuclides, And Nutrients With Organisms In Aquatic Community	Kevern, N.R.
Project 1414	Effects Of Toxic Chemicals On Aquatic Systems	Giesy, J.P.
Project 1531	Modeling Avian Population Dynamics: Juvenile Dispersal Patterns And Reproductive Strategies	Winterstein, S.
Project 1540	Ecology, Population Dynamics And Management Of Michigan Fishes And Their Food Organisms	Taylor, W.
Project 1552	Wildlife Responses To Forest Management In Michigan	Haufler, J.
Project 1558	Bioeconomic Analysis Of Fisheries, Wildlife And Related Resource Utilization	Hanson, J.
Project 3077	Environmental And Genetic Components Of Reproduction In Bird Populations	Prince, H.H.
Project 3248	Improving Productive Public Involvement In Agricultural And Natural Resource Problem Solving	Peyton, R.B.
Project 3254	Development Of Commercial Fish Culture Techniques For Michigan	Garling, D.
Project 3288	Habitat And Its Effects On The Ecology And Management Of Michigan Fishes	Coon, T.
Project 3292	Food Resource Base For Young-Of-The-Year Fish Production In Great Lakes Wetlands	McNabb, C.D.
Project 3804	Economic Feasibility Of Culturing Fish Species That Offer Economic Potential In Michigan	McNabb, C.D.
Project 7557	Regional Aquaculture Center	McNabb, C.D.
Project 10001	Regional Aquaculture Center	McNabb, C.D.

Food Science & Human Nutrition

Project 679	Effect Of Processing On Food Composition And Quality	Markakis, P.
Project 1174*	Food Quality Changes And Energy Consumption Associated With Thermal Processing In Foodservice Systems	Zabik, M.E.
Project 1193	Dietary And Physiological Factors Affecting Bioavailability And Utilization Of Nutrients	Chenoweth, W.C.
Project 1209	Quality Of Fresh And Processed Meat Products	Price, J.F.
Project 1211	Dietary Fat/Carbohydrate Relationships To Selected Health Parameters	Schemmel, R.A.
Project 1323	Process Efficiency, Quality, And Nutrient Composition Of Fruit And Vegetable Products	Uebersax, M.A.
Project 1344	The Effects Of Processing, Cooking And Storage On The Acceptability And Safety Of Food Products	Gray, J.I.
Project 1413	Metabolism And Function Of Vitamin A	Zile, M.H.
Project 1419	Processing Treatments Influencing Functional Properties And Utilization Of Muscle Foods	Booren, A.M.
Project 1444*	Health Maintenance Aspects Of Dietary Recommendations Designed To Modify Lipid Metabolism	Romsos, D.
Project 1448	Microbial Food-Borne Diseases	Pestka, J.J.
Project 1477	Biochemical Role(s) Of Retinoids In Cholesterol Metabolism	Ott, D.B.
Project 1478*	Genetic Improvement Of Beans (<i>Phaseolus Vulgaris</i> L.) For Yield, Pest Resistance And Food Value	Uebersax, M.A.

Food Science & Human Nutrition

(continued)

Project 1480	Pantothenic Acid Nutriture In Human Beings: Requirement, Absorption	Song, W.O.
Project 1504	Evaluation Of Nutritional Status And Food Behavior	Hoerr, S.
Project 1506*	Development Of New Processes And Technologies For The Processing Of Poultry Products	Smith, D.M.
Project 1511	Development Of Technology For The Genetic Engineering Of The Filamentous Fungi: <i>Mucor</i> And <i>Rhizopus</i>	Linz, J.E.
Project 1512	Mass Transfer And Separations In Bioprocesses	Grulke, E.
Project 1524*	Changing Patterns Of Food Demand And Consumption Behavior	Zabik, M.
Project 1525	Cleaning Of Membrane Separation And General Processing Systems In The Dairy Industry	Partridge, J.
Project 1527	Cook/Chill Foodservice Systems: Shelf Life Of Precooked Chilled Foods	Sawyer, C.
Project 1532*	Functional Properties Of Food Proteins	Smith, D.
Project 1597	Food Toxicology And Safety	Helferich, W.
Project 1599	Regulation Of Calcium In Muscle Sarcoplasm	Strasburg, G.M.
Project 3092	Effect Of Raw Material, Processing And Storage Factors On Food Cost And Quality	Wishnetsky, T.
Project 3221	Processing And Quality Evaluation Of Fruits And Vegetables	Cash, J.N.
Project 3276	Food Industry Institute	Haines, W.
Project 3298	Relationship Of Diet And Cancer	Bennink, M.
Project 6859	Prevention Of Mycotoxicoses By Specific Stimulation Of Intestinal Immune System	Pestka, J.J.
Project 6866	Cardiac CA ²⁺ Channel Defect In Malignant Hyperthermia	Strasburg, G.M.
Project 8034	Indices For Assessment Of Pantothenic Acid Status	Song, W.O.
Project 8064	Metabolism And Function Of Retinoic Acid In The Small Intestine	Zile, M.

Forestry

Project 978	Financial Evaluation Of Forest Management Opportunities	Potter, K.
Project 1048	The Hygroscopic Dimensional Changes Of Wood and Wood Products	Suchsland, O.M.
Project 1100*	Strategies And Procedures For Advanced Generation Breeding Of N.C. Forest Species	Hanover, J.W.
Project 1148	Development Of Techniques In Forest Biometry	Ramm, C.W.
Project 1198	Biology Of Terpenes In Woody Plants	Hanover, J.W.
Project 1207	Silviculture And Physiology Of Michigan Tree Species Grown Under Intensive Management	Dickmann, D.I.
Project 1432	Public Knowledge And Attitudes Concerning Forest Management Practices	McDonough, M.
Project 1438	Enhancing Amenity Values Of Urban And Rural Trees	Kielbaso, J.J.
Project 1447*	Chemistry Of Atmospheric Deposition—Effects On Agriculture, Forestry, Surface Waters, And Material	Hart, J.B.
Project 1485	Stress And Strain Measurements In Wood And Wood Products	Sliker, A.
Project 1487	Development Of Tissue Culture Systems For Genetic Improvement Of Woody Plants	Keathley, D.E.
Project 1494	Intensive Management For The Regeneration Of Conifers And Hardwoods In Michigan	Lantagne, D.

Project 1509	Environmental And Genetic Control Of Carbon Allocation And Chemical Defense In Trees	Pregitzer, K.
Project 1535	Forest Resources Planning	Leefers, L.
Project 1551	Ecological Factors Affecting Tree Productivity	Pregitzer, K.
Project 1553	International Trade Of Forest Products	Vincent, J.
Project 1560	Factor Demands By The Forest Products Industry	Vincent, J.
Project 3157	Accelerating Tree Growth By Manipulating Genetic And Cultural Factors	Hanover, J.W.
Project 7525	Advanced Technology Applications To Eastern Hardwoods Utilization	Hanover, J.W.
Project 7536	Advanced Technology Application To Eastern Hardwoods	Huber, H.
Project 7542	Advanced Technology Applications To Eastern Hardwoods Utilization	Huber, H.
Project 7554	Isolation Of Decay Resistance Genes From Black Locust	Keathley, D.E.
Project 7555	Advanced Technology Applications To Eastern Hardwood Utilization	Huber, H.
Project 7565	Advanced Technology Applications To Eastern Hardwood Utilization	Hanover, J.
Project 8043	Resin Distribution And Horizontal Density Effects On Wood Composite Durability	Suchsland, O.
Project 8061	Genetic Structure And Adaptation Of Natural Populations Of Spruce	Hanover, J.W.

Forestry

(continued)

Project 3279	Protective Management Methods For Michigan's Coastal Sand Dunes	Chubb, M.
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Geography

Project 935	Effects Of Biologically Active Chemicals On Plant Growth And Development	Bukovac, M.J.
Project 1153*	Quality Maintenance And Control In The Marketing And Storage Of Vegetables	Herner, R.C.
Project 1155*	Postharvest Physiology Of Fruits	Dilley, D.R.
Project 1222*	Introduction, Maintenance, Evaluation, And Utilization Of Plant Germplasm	Iezzoni, A.F.
Project 1272	Physiology Of Carbon Balance In Horticulture Crops	Flore, J.A.
Project 1305*	Rootstock And Interstem Effects On Pome And Stone Fruit Trees	Perry, R.
Project 1325	Sustainable Weed Control And Crop Nutrition On Organic Soil Vegetables	Zandstra, B.H.
Project 1380	Strawberry, Blueberry And Bramble Improvement	Hancock, J.F.
Project 1386	Breeding And Genetics Of Floriculture Plants	Ewart, L.C.
Project 1428	Sour Cherry And Peach Breeding And Genetics	Iezzoni, A.F.
Project 1461*	Freeze Damage And Protection Of Fruit And Nut Crops	Howell, G.S.
Project 1468	Mineral Nutrition Of Vegetable Crops	Widders, I.E.
Project 1517	Optimization Of The Root Zone Environment In Greenhouse Crop Production	Biernbaum, J.
Project 1544	Manipulation And Transfer Of Nuclear And Organelle Genes In Vegetable Cultivars By Cell Fusion	Sink, K.
Project 1549	Application Of Molecular Genetic Approaches To Vegetable Crop Improvement	Grumet, R.

Horticulture

Horticulture

(continued)

Project 1559*	Engineering Greenhouse And Other Controlled Environment Plant Productions Systems	Heins, R.D.
Project 1570	Reduced Tillage, Cover Crops And Intercrops For Increasing Efficiency Of Production Of Vegetable Crops	Price, H.
Project 1589	Environmental And Physiological Variables Effect On Growth, Quality And Marketability Of Garden Crops	Carlson, W.H.
Project 1607	Physiological Adaptation And Cultural Manipulation Of Woody Plant Systems	Schutzki, R.
Project 3012	Chemical Regulation Of Plant Growth, Quality And Yield	Ries, S.K.
Project 3218	Manage Viticulture To Maximize Yield/Fruit Process Quality And Adaptation To Environmental Stress	Howell, G.S.
Project 3227	Adaptation Of Cultivars And Cultural Practices To Michigan Conditions	Kesner, C.D.
Project 3247	Breeding And Selection Of New Grape Cultivars For Michigan	Hancock, J.F.
Project 3266	Breeding And Genetics Of Onions	Ewart, L.C.
Project 3270	Postharvest Storage Of Field Grown Hardy Herbaceous Perennials And Woody Ornamentals	Cameron, A.C.
Project 3272	Physiological And Environmental Factors Influencing Growth And Development Of Flower Crops	Heins, R.D.
Project 3281	Mineral Nutrition Of Michigan Fruit Crops	Hanson, E.
Project 3305	Viticulture Practices For Mechanical Pruning And Crop Control Of Concord And Niagara Grapevines	Zabadal, T.
Project 7523	Factors Causing Tree Decline And Reduced Production Of Cherry, Peach And Plum Trees Under Michigan Climatic Conditions	Flore, J.A.
Project 7544	Apple Quality Improvement Through Production, Storage, And Distribution Technology	Dilley, D.
Project 7546	Factors Causing Tree Decline And Reduced Production Of Cherry, Peach And Plum Trees Under Michigan Climatic Conditions	Flore, J.
Project 8045	T-DNA: A Novel Marker System For Asymmetric Gene Transfer By Cell Fusion	Sink, K.

Human Ecology

Project 3152	Functioning Of The Family Ecosystem In A World Of Changing Energy Availability	Gladhart, P.M.
Project 3306	Vulnerable Children, Tools For Communities To Monitor Conditions Affecting Youth Development	Keith, J.

Human Environment & Design

Project 1442*	Reducing Pesticide Exposure Of Applicators Through Improved Clothing Design And Care	Slocum, A.
Project 1565*	Rural Retailing: Impact Of Change On Consumer And Community	Sternquist, B.
Project 3256	Toward Achieving Michigan's Rural Employment Potential: The Role Of Resort Area Retailing	Sternquist, B.
Project 3261	Family Adaptation To Changing Resources And Environments: Improving Quality Of Life In Rural Areas	Sontag, M.S.
Project 3284	Upper Michigan Tourism: Market Segmentation And Tourist Consumer Behavior Modeling	Sternquist, B.
Project 3286	Residential Architecture In 19th Century Michigan	Graham, R.

Large Animal Clinical Sciences

Project 1417*	Bovine Respiratory Diseases: Risk Factors, Pathogens, Diagnosis And Management	Baker, J.
Project 1550	Bovine Respiratory Disease: Risk Factors, Immunology, Pathogenesis And Control	Baker, J.
Project 6805	Bovine Leukemia Virus Infection In Calves	Kaneene, J.B.
Project 6848	Immunogenicity Studies Using Purified Outer Membranes Of <i>Haemophilus Pleuropneumoniae</i>	Thacker, B.
Project 6854	Volumetric Measurement Of Lung Lesions By Proton Magnetic Resonance Imaging	Baker, J.
Project 6855	Evaluation Of Eflornithine On The In Vitro And In Vivo Development Of Cryptosporidium SP	Holland, R.
Project 6856	The Influence Of Choline Deficiency On The Development Of Ketosis And Fatty Liver	Herd, T.H.
Project 6857	Epidemiological Study Of Food Safety Concerns Of <i>E. Coli</i> 0157:h7	Kaneene, J.B.
Project 6862	The Effect Of Use Of A Platelet-Activating Factor Antagonist (WEB 2086) In Equine Large Colon Torsion	Wilson, D.V.
Project 7526	Immunobiology And Pathogenesis Of <i>Haemophilus Pleuropneumoniae</i> Infection In Swine	Thacker, B.
Project 7561	Information Management, Systems Modeling, And Computer Simulation For Health Management In Hogs	Lloyd, J.

Mechanical Engineering

Project 8041	Experimental And Theoretical Studies Of Wind-Aided Flame Spread On Wood	Wichman, I.
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Microbiology & Public Health

Project 1177	Biochemical Symbiosis Between Termites And Their Intestinal Microbes	Breznak, J.A.
Project 1314	Symbiotic Infection Of Legume Roots By Nitrogen-Fixing Rhizobium	Dazzo, F.B.
Project 1371	An In Vivo Model To Study Latent Pseudorabies Virus Infections	Maes, R.K.
Project 1453	Structure/Function Relationships In Chicken Globin And Histone Genes	Dodgson, J.
Project 1481	Characterization And Inhibition Of Bacterial Urease	Hausinger, R.P.
Project 1557	Molecular Regulation Of <i>Streptomyces</i> Antibiotic Synthesis	Champness, W.
Project 1593*	Advanced Technologies For The Genetic Improvement Of Poultry	Dodgson, J.
Project 3116	Bacterial Ecology: Diverse Energy Reactions And Regulation In Bacteria	Uffen, R.L.
Project 3120	Microbial Decomposition Of Organic Matter In Aquatic Systems	Klug, M.J.
Project 6842	Immunobiology Of <i>Haemophilus Pleuropneumoniae</i> Infection In Swine	Mulks, M. H.
Project 6850	Passive Immunization Of The Bovine Lower Respiratory Tract Against <i>Pasteurella Haemolytica</i>	Walker, R.
Project 6858	PCR Based Evaluation Of The Influence Of Vaccination On Pseudorabies Virus Latency	Maes, R.K.

Microbiology & Public Health

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Project 6861	Nucleotide Sequence Analysis Of cDNA Encoding The Matrix-Like Protein May Elicit CMI Against BRSV	Velicer, L.F.
Project 7535	Recombinant DNA Proteins In Marek's Disease: Immunosuppression And Protection	Velicer, L.F.
Project 7551	Effects Of Pasteurella Haemolytica Leukotoxin On Bovine Neutrophil Function	Walker, R.
Project 7559	Polymerase Chain Reaction Based Detection Of Pseudorabies Virus Latency	Maes, R.
Project 8047	Gene Insertion Into The Avian Germ Line Using Retroviral Vectors	Salter, D.
Project 8066	Enhancement Of Urea Fertilizer Efficiency	Hausinger, R.P.

MSU-DOE Plant Research Lab

Project 1501	Genetic Manipulation Of Lactic Dehydrogenase Enzymes In Cereals In Subproject Title	Hanson, A.D.
Project 8048	Molecular Basis And Function Of Stress-Induced Betaine Synthesis In Plants	Hanson, A.D.
Project 8050	The Molecular Basis For Chilling Sensitivity In Mutant Of Arabidopsis	Somerville, C.R.
Project 8055	Photoperiodic Control Of Gibberellin Metabolism In Long-Day Plants	Zeevaart, J.
Project 8056	Cell Wall Proteins Of The Cereals	Lamport, D.
Project 8063	Studies Of Ethylene Formation Using Mutants And Photoaffinity Probe	Kende, H.
Project 8067	The Role Of Lipid Unsaturation In Cold Sensitivity	Sommerville, C.R.

Packaging

Project 1493	Consumer Size Modified Atmosphere Packaging Of Fresh Produce	Lee, J.
Project 1520	Diffusion And Sorption Properties Of Plastics As Related To The Quality Of Packaged Products	Giacin, J.
Project 3108	Control Of Damage And Loss In Distribution	Twede, D.
Project 7538	Use Of Eastern Hardwoods In Wood Fiber/Plastic Composites	Selke, S.
Project 7553	Use Of Eastern Hardwoods In Wood Fiber/Plastic Composites	Selke, S.
Project 7567	Use Of Eastern Hardwoods In Wood Fiber/Plastics Composites	Selke, S.

Park & Recreation Resources

Project 1514*	Tourism Impacts And Development Alternatives From The Local Rural Government Perspective	Stynes, D.
Project 3280	Travel, Tourism And Recreation Resource Center	Holecck, D.F.

Pathology

Project 1154*	Prevention And Control Of Enteric Diseases Of Swine	Waxler, G.L.
Project 1307	Pathologic Effects Of Chemicals Of Importance To Michigan Agriculture	Sleight, S.D.
Project 1534	Mechanisms Of Resistance To Rotavirus-Associated Disease	Patterson, J.
Project 6853	Heteromyeloma Against The 987P Pilus Of Enterotoxigenic <i>Escherichia Coli</i> A Porcine/Murine	Grimes, S.
Project 8069	Conference Grant For The XXIIInd International Conference On Animal Genetics	Bull, R.W.

Pesticide Research Center

Project 1571*	A National Agricultural Program To Clear Pest Control Agents And Animal Drugs For Minor Uses	Hollingworth, R.
Project 7533*	North Central Leader Laboratory Program For Minor Use Drug Research To Supplement The IR-4 Program	Hollingworth, R.
Project 7539	Impact Of Pesticides In Michigan Apple And Corn Production In 1987	Bird, G.
Project 7541*	North Central Region IR-4 Leader Lab Program To Clear Pest Control Agents For Minor Uses	Hollingworth, R.
Project 8052*	North Central Region IR-4 Leader Lab Program To Clear Animal Drugs For Minor Use	Hollingworth, R.
Project 8053	Stimulo-Deterrent Trap-Cropping For Control Of Onion Maggot	Miller, J.

Physiology

Project 1542	Neurohumoral Control Of Growth And Development Of The Exocrine Pancreas In Vitro	Hootman, S.
Project 1554	Carbohydrate Recognition During The Development Of The Nervous System	Zipser, B.

Resource Development

Project 1075	Natural Resources In Economic Development: Spatial Analyses	Chappelle, D.E.
Project 1102	Government, Science and Resources: Interactions And Conflicts	Bronstein, D.A.
Project 1515*	Policy Implications For Farm Household And Rural Community Responses To Economic Changes	Vlasin, R.D.
Project 1536	Systems Approaches To Resource Assessment, Planning And Management For Rural Development	Shultink, G.
Project 1545	Identification, Assembly And Application Of Developmental Data With Michigan Community Decision Makers	Kimball, W.
Project 3235	Mineral Lands Development, Energy Requirements And Environmental Impacts	Kakela, P.J.
Project 3267	Sustainable Agriculture: The Role Of Bio-Management In Agricultural Systems	Edens, T.C.

Resource Development

(continued)

Project 3268	Impact Of Extension Leadership Program And Factors Associated With Leadership Effectiveness	Thullen, M.
Project 3277	A Critical Review Of Farmland Scarcity In Michigan	Nickel, P.
Project 3297	A Strategic Environmental Management System For Michigan's Inland Water Resources	Bartholic, J.
Project 3803	Cooperative Action Among Michigan Communities To Achieve Economic Advancement	Vlasin, R.D.

Sociology

Project 1476*	Socioeconomic Dimensions Of Technological Change, Natural Resource Use, And Agriculture Structure	Schwarzweiler, H.
Project 1612	Strategic Analysis Of Technical Change In Commodity Subsectors	Busch, L.
Project 3283	Trends And Differentials In Infant Mortality In Michigan By Residence, Race, And Sex	Johnson, N.E.

List of MAES Contributors

July 1, 1989
to June 30, 1990



Abbott Laboratories
Agency for International Development
Agri Sales, Inc.
Agrolinz, Inc.
Agtrol Chemical Products
Ajinomoto Co., Inc.
Alcoa Foundation
Alf Christianson Seed Company
Allelix
Allen & Baer Associates
Allen Foundation
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American Colloid Company
American Cyanamid Company
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Agricultural Engineers
Ameri-Can Pedigreed Seed Company
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Chicago Zoological Society
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 DF Activities Corporation
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 Enichem Americas, Inc.
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 Fermenta ASC Corporation
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Four Star Greenhouse
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 Funk Seeds International, Inc.
 Garden Club of Greater Lansing
 General Electric Company
 General Mills, Inc.
 Gerber Companies Foundation
 Gerber Products Company
 Glass Corner Greenhouses, Inc.
 Glaxo, Inc.
 Glei Orchards, Inc.
 The Fred C. Gloeckner Foundation
 Good, Norman E. and Leona
 Gordon Research Conferences
 W. R. Grace & Company
 Great Lakes Hybrids, Inc.
 Green Circle Growers, Inc.
 Greiner Farms, Inc.
 Griffin Corporation
 Growmark, Inc.
 Growth Products
 Gustafson, Inc.
 Hancock, James & Ann
 Harvard University
 Hastings, Inc. Easter Lily Bulbs
 Health Science Research Foundation
 Herb Society of America,
 Southern Michigan Unit
 Hershey Foods Corporation
 Hicks, William D. & Lucille R.
 Joseph H. Hill Memorial Foundation, Inc.
 Celanese Hoechst Corporation
 Hoechst-Roussel Agri-Vet Company
 Hoffman, LaRoche
 Horticultural Research Institute, Inc.
 Hubbard Apiaries, Inc.
 Hurt, Dorrit H.
 ICI Americas, Inc.
 University of Idaho
 Illinois Institute of Technology,
 Research Institute
 Ingersoll-Rand Company
 Instituto de Estrategias Agropecuarias
 International Bloembollen Centrum
 International Diagnostic
 Systems Corporation

International Dwarf Fruit Tree Association

International Institute for Tropical Agriculture

International Society of Aboriculture

Italian Livestock Association

Jaffray, Susan Jordan

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KAC Holdings, Inc.

KALSEC, Inc.

W. K. Kellogg Company

University of Kentucky

King Agro, Inc.

King Milling Company

Kirin Brewery Company, Inc.

KLM Bio Systems, Inc.

Knappen Milling Company

Knouse Growers Cooperative of Michigan, Inc.

Kraft-General Foods, Inc.

Kucharski, Karen Marie

Kunze, Raymond J.

Land Improvement Contractors of America

Lansing Grain Company

Lansmont Corporation

Lantbruksuniversit

Leelanau Fruit Company

Les Entreprises Salome, Inc.

Lesco, Inc.

Lewis, Charlotte F.

Eli Lilly & Company

Lilly Research Laboratory

Ludington Area Charterboat Association

Marcotte, Oliver

Marine World Africa

Martin Marietta Energy Systems

Maryland Zoological Society, Inc.

Mast Greenhouses-Illinois

Henry Mast Greenhouses, Inc.

Neal Mast & Sons Greenhouses

Meat Processing Service Corporation, Inc.

Meirings Greenhouse & Farms

Mennel Milling Company of Michigan

Merck and Company, Inc.

Merrell Dow Pharmaceuticals

Metropolitan Detroit Landscape Association

Michigan Agrichemical & Fertilizer Association

Michigan Agricultural Commodities, Inc.

Michigan Apple Research Committee

Michigan Asparagus Research Committee

Michigan Association of Municipal Cemeteries

Michigan Association of Nurserymen, Inc.

Michigan Association of Nurserymen, Research & Scholarship Fund

Michigan Audubon Society, Inc.

Michigan Beef Industry Commission

Michigan Biotechnology Institute

Michigan Blueberry Growers Association

Michigan Cherry Committee

Michigan Christmas Tree Growers Association

Michigan Crop Improvement Association

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Michigan Department of Commerce

Michigan Department of Education

Michigan Department of Natural Resources

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Michigan Foundation Seed Association

Michigan Milk Producers Association

Michigan Mint Research & Development Program

Michigan Onion Committee

Michigan Peach Sponsors

Michigan Pear Research Association

Michigan Plum Advisory Board

Michigan Potato Industry Commission

Michigan State Horticultural Society

Michigan Sugar Company

Michigan Technological University

Michigan Trefoil Growers Associates

Michigan Turfgrass Foundation

University of Michigan

Michigan Vegetable Council, Inc.

Michols, William & Lois

Midwest Plant Biotechnology Consortium

North American Strawberry Growers Associates, Inc.
North Carolina State University
Northwestern Ohio Gladiolus Society
Ohio State Beekeepers Association
Oregon Rodent Control
State of Oregon
Oregon State University
Owens Illinois, Inc.
Parke-Davis & Company
Parrich & Heimbecker, Inc.
PBI Gordon Corporation
Peabody, Fred & June
Pennwalt Chemical Corporation
Periwinkle Garden Club
Pfizer, Inc.
Pickell Apiaries
Pickle Packers International, Inc.
Pillsbury Company
Pioneer Hi-Bred International, Inc.
Pitman-Moore, Inc.
Post Gardens of Battle Creek, Inc.
Premier Peat Moss, Ltd.
Price, Bruce
Pure-Seed Testing, Inc.
Quaker Oats Company
C. Raker & Sons
Ralston Purina Company
Ramey, David Roy
Red Arrow Products Company, Inc.
Reuter-Stokes, Inc.
Rhone-Poulenc Ag Company
Rieke, Paul E.
Ringer Corporation
Rockefeller Foundation
Rocky Mountain Elk Foundation
Rodale Institute
Rogers Brothers Seed Company
Rohm & Haas Company
Royal & Ancient Order of the Trout
Rutgers University
S & S Investment
Safer, Inc.
Saginaw County Mosquito Abatement Commission

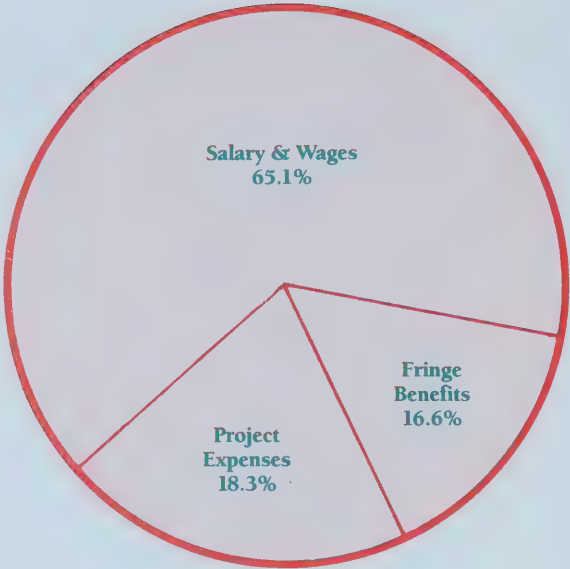
Sakata Seed Company
Sandoz Crop Protection Corp.
Schafer, Verlag Moritz
Schmaltz, Lloyd & Judy
Schoenmeyer, James & Janet
O. M. Scott & Sons Company
Select Sires, Inc.
SEMCOG General Fund
Roger P. Semrau Greenhouses, Inc.
Shell Aid Sales
Sierra Chemical Company
Sigma One Corporation
Slotterbach Mt.
Small Growers, Inc.
Soil Technologies Corporation
Sonnyside Flowers
Soybean Promotion Committee of Michigan
Sport Fishing Institute Fund
Square Root Farms
S & S Shambaugh & Son, Inc.
Midwest Univ. Cons. for Int'l. Activities
Milwaukee Metropolitan Sewerage District
Ministerio de Education Y Ciencia
Mink Farmers Research Foundation
Minnesota Mining & Mfg.
University of Minnesota
Mischel's Greenhouses
Mobay Corporation
Monitor Sugar Company
Monsanto Company
Moore Seed Farm
Moorman Manufacturing Company
MSU Foundation
MSU Horticulture Club
Murco, Inc.
Muscular Dystrophy Association, Inc.
Mycogen Corporation
Myers, Ted R. & Ina
Fred W. Nagel & Son, Inc.
National Dairy Promotion & Research Board
National Grape Cooperative Association
National Institute on Park & Grounds Management

National Institute of Animal Science
 National Institutes of Health
 National Livestock & Meat Board
 National Science Foundation
 Neogen Corporation
 New Zealand Agricultural
 Engineering Institute
 Niagara Pen Fruit & Vegetable Growers
 Noble, Dr. Lachlan
 Nor-Am Chemical Company
 North American Agricultural
 Products, Inc.
 Star of the West Milling Company
 Stark Brothers' Nurseries
 & Orchards Company
 Sulzer Brothers, Inc.
 Sustane Corporation
 Svalof Seed, Ltd.
 Teledyne Continental Motors
 Tennessee Valley Authority
 Terra International, Inc.
 Timbuk Farms, Inc.
 Tinsley Wire North America
 The Toro Company
 University of Toronto
 Toyosha Company, Ltd.
 Trout Unlimited
 U.P. White Tails Associates, Inc.
 U.S. Army Eng. Waterways Exp. Station
 U.S. Borax & Chemical Corporation
 U.S. Department of Commerce
 U.S. Department of Energy
 U.S. Forest Service
 U.S. Department of the Interior
 U.S. Fisheries & Wildlife Service
 Uniroyal Chemical Company
 United Agri Products
 United Parcel Service
 The Upjohn Company
 Valent U.S.A. Corporation
 Van Der Have
 Van Pernis, Henry & Eileen
 VanAtta's Greenhouse
 Venman, John & Diane
 University of Vermont
 Vigoro Industries, Inc.

Vlasic Foods, Inc.
 Volvo North America Corporation
 Waldron, Jane Ann
 Washington State University
 Welsch, Margaret & Clifford
 Wenke Greenhouses
 Werner, Armin & Juanita
 Western Association of Fish &
 Wildlife Agencies
 Western Michigan Bedding
 Plant Association
 Roy F. Weston, Inc.
 Whei-Lan, Teng
 Wilkie Turf Equipment Division, Inc.
 Winrock International
 Wisconsin Christmas Tree
 Producers, Inc.
 Wooden Shoe Greenhouses, Inc.
 Yoder Brothers, Inc.
 Yoder Canada, Ltd.
 Zelenka Evergreen Nursery, Inc.

Financial Report

July 1, 1989
to June 30, 1990



Distribution Of
Appropriated
Funds

INCOME:		<u>\$48,566,191</u>
Federal Appropriations:		\$4,455,922
Hatch	\$3,411,542	
McIntire-Stennis	169,533	
Hatch RRF	776,912	
Hatch Animal Disease Research	97,935	
State Appropriations:	20,801,361	
TOTAL APPROPRIATIONS:	25,257,283	
Grants—Federal, State & Private	23,308,908	
EXPENSES:		<u>\$48,566,191</u>
Salaries	\$16,428,396	
Fringe Benefits	4,198,015	
Project Expenses	4,630,872	
Grants—Federal, State & Private	23,308,908	

Personnel

(Full-Time Equivalents)

Research Staff*	161
Professors	68
Associate Professors	32
Assistant Professors	30
Research Associates and Specialists	31
Support Staff	171
Administrative Professionals	78
Supervisors	24
Clerical	56
Technicians	13

*Does not include department chairpersons/unit administrators

Michigan Agricultural Experiment Station
Robert G. Gast, Director
Michigan State University
East Lansing, Michigan 48824-1039

SR-28, January 1991

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